DOCUMENT RESUME

ED 022 277 24 EC 001 860

By-Rau, Dorothea Natalie

PARENTAL TEACHING OF THE EDUCABLE MENTALLY RETARDED CHILD AS RELATED TO SCHOOL ACHIEVEMENT.

Illinois Univ., Urbana.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Report No-CRP-S-086
Pub Date Jan 67
Contract-OEC-4-10-241
Note-130p.
EDRS Price MF-$0.75 HC-$5.28
Descriptors-ACADEMIC ACHIEVEMENT, *ACHIEVEMENT, EDUCABLE MENTALLY HANDICAPPED, *EXCEPTIONAL CHILD RESEARCH, *FAMILY (SOCIOLOGICAL UNIT), FAMILY INFLUENCE, HIGH ACHIEVERS, INTERVIEWS, LOW ACHIEVERS, *MENTALLY HANDICAPPED, PARENT CHILD RELATIONSHIP, PARENT INFLUENCE, PARENT PARTICIPATION, SOCIOECONOMIC STATUS, TASK PERFORMANCE

To identify home influences related to the school achievement of the educable mentally retarded, 36 subjects (ages 9-0 to 12-11, IQ's 55 to 75) representing high or low school achievement were selected and divided into higher and lower socioeconomic groups. Both parents were questioned about their activities with the child, and the mother was asked in a later session to teach specified block designs and tests of general information to the child. Analysis of parent responses indicated imbalance among the subgroups: less achievement discrepancy was observed among the high achievers of the lower socioeconomic group than high achievers of the higher socioeconomic group ($p > .05$); the high achievers in both socioeconomic groups differed from the low achievers in that they had a lower IQ, mental age, and expected grade placement ($p < .05$); and a disproportionately high representation of girls was found in the higher socioeconomic group ($p = .01$). Results from the parent interview indicated fathers of high achievers, regardless of socioeconomic level, mentioned with higher frequency their social emotional dealings with the child ($p < .01$); and mothers of high achievers gave less verbal control. (RS)

BR-5-8101
PA.24

FINAL REPORT
Project No. S-086
Contract No. OE 4-10-241

PARENTAL TEACHING OF THE EDUCABLE MENTALLY RETARDED CHILD AS RELATED TO SCHOOL ACHIEVEMENT

January 1967

U. S. DEPARTMENT OF

HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

ED022277

EC 001 560

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

PARENTAL TEACHING OF THE EDUCABLE MENTALLY RETARDED CHILD AS RELATED TO SCHOOL ACHIEVEMENT

Project No. S-086
Contract No. OE 4-10-241

BY

DOROTHEA NATATLIE RAU

January 1967

The research reported herein was performed pursuant to a contract with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Graduated College of the University of Illinois

Urbana, Illinois

ACKNOWLEDGEMENTS

This study could not have been undertaken without extensive help from many individuals and agencies. The investigator is deeply grateful to her adviser, Dr. Bernard Farber, whose scholarship, counsel, and great humanity provided a sustaining framework for her reserach efforts. Special thanks are due to the entire staff of the Institute for Research on Exceptional Children of the University of Illinois, and especially to the members of her doctoral committee, Professors Samuel A. Kirk, Glen Blair, Robert A. Henderson, Joe R. Burnett and Donald R. Peterson for their inspiring encouragements.

But most of the merits which might be derived from the study will have to be attributed to the many parents of EMR children who frankly related to the writer their concerns about their special child. The challenging questions they posed and their willing cooperation in the investigations proved most fruitful.

The financial help received from the U. S. Office of Education represented a great impetus to elaborate in detail the information from the parents. It made available to the investigator needed personnel for the theoretical and clerical requirements of the study. An additional positive factor was the wholehearted cooperation of the staff of the Special School District of St. Louis County who arranged for identification of the subjects and for negotiations with the families involved.

Much help with the implementation of the Parent Interview and the Parent Test was received from Mr. Charles Horn, research assistant on the project, who also facilitated the communication with the parents. For the tedious content analyses of the information from the parent

much stimulation and practical help was given by the research assistants Mrs. Marion Chamberlain, Mrs. Beverly Harvey, and Mr. Roger Kuhn.

Finally the investigator wishes to express deep gratitude to the members of the Lutheran Association for Special Education and to the staff of the Special Lutheran School in St. Louis for permitting her to pursue her studies at the University of Illinois and for granting her special time to complete this study.

TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS iii

LIST OF TABLES. vi

LIST OF FIGURES viii

CHAPTER

I. INTRODUCTION 1

Objectives of the Study 2

II. REVIEW OF THE LITERATURE 4

General Theoretical Background 4

Definition of Terms 11

Parental Perceptions of the EMR Child 13

Methodological Approaches to Studies on Parent-Child Interaction 19

Summary of the Review of Literature. 25

III. PROCEDURE: SELECTION OF THE SUBJECTS. 27

Community Characteristics of the Sample. 27

The School Administrative Framework. 27

Criteria for Selection of the Subjects 28

Socioeconomic Differentiation of the Subjects . . . 29

Achievement Differentiation of the Subjects 29

IV. PROCEDURE: THE PARENT INTERVIEW 38

Inception of the Home Investigations 38

Procedures for the Parent Interview. 41

Content Analysis of the Parent Interview 41

Category System. 43

V. PROCEDURE: THE PARENT TEST 49
Main Considerations for the Parent Test 49
Procedures for the Parent Test 50
Content Analysis of the Parent Test. 55
Category System 56
Statistical Procedures. 60
VI. RESULTS 61
Characteristics of the Sample 61
Findings from the Parent Interview 68
Findings from the Parent Test 81
VII. DISCUSSION OF RESULTS 90
Achievement Grouping of the Subjects 90
Relevance of the Parent Interview 94
Mother Father Differences in Correlations Obtained from the Parent Interview 97
Consistently High Frequency of Teaching Approaches on Part of Mothers of Low Achievers 100
Preponderance of Responses from Parents of EMR girls 102
VIII. SUMMARY, IMPLICATIONS AND RECOMMENDATIONS 106
The Problem and the Objectives 106
The Subjects 106
Research Procedures 107
Results 108
Implications 110
Recommendations for Follow-Up Research . . . 115
BIBLIOGRAPHY 118

LIST OF TABLES

TABLE Page

1 Effects of Social Structure Upon Behavior 8

2 Primary and Secondary Characteristics Leading to Exclusion of 137 Subjects out of 237 30

3 Reasons for Parental Unavailability for the Investigations 34

4 Fathers' Occupational Classification of High Achieving Subjects 36

5 Fathers' Occupational Classification of Low Achieving Subjects 37

6 Example of Coding Considerations in the Content Analysis of the Parent Interview 47

7 Questions on General Information Used for Subjects With Expected Grade Placement Below 3.9 and Above 3.9 53

8 Means, StandardDeviations, and Ranges of Achievement Discrepancy Scores, t - Tests and Probabilities for the Four Research Groups 64

9 Means, Standard Deviations, and Analyses of Variance for CA, IQ, MA and XGP for High and Low Achievers from the Higher and Lower Socioeconomic Group 65

10 Correlations Between Persons Mentioned, Achievement Score, Socioeconomic Classification, and Sex of the Child as Mentioned by Mothers and by Fathers 71

11 Correlations Between Dealings with the Child and Achievement Score, Socioeconomic Classification and Sex of Child as Mentioned by Mothers and by Fathers 73

12 Correlations Between Subject Matters and Achievement Score, Socioeconomic Classification and Sex of the Child as Mentioned by Mothers and by Fathers 75

13 Correlations Between Frequency-Regularity and Achievement Score, Socioeconomic Classification and Sex of Child as Mentioned by Mothers and by Fathers 78

LIST OF TABLES (continued)

TABLE Page

14 Correlations Between Aspects of Parental Comparisons and Achievement Score, Socioeconomic Classification and Sex Child as Mentioned by Mothers and by Fathers. 80

15 Correlations Between Nineteen Techniques of Maternal Teaching and Achievement Score, Achievement Classification, Socioeconomic Rating and Socioeconomic Classification. 83

16 Correlations and Partial Correlations Between Selected Techniques of Parental Teaching and Achievement Score, Sex and MA of the Child Subjects 85

17 Intercorrelation Matrix of Parental Teaching Techniques 87

18 CA and MA Equivalents for Prediction of Expected Achievement for School Children of Different Ages 91

19 Correlations Between the Characteristics of IQ, MA, XGP and the Achievement Classification and Achievement Scores of the Subjects 93

20 Mother - Father Differences in Significant Correlations Between Parent Interview Items, Socioeconomic Level, Sex of Child, and Parental Intercorrelations of Items 99

21 Numbers of Subjects, Mean Socioeconomic Scores, and Range of Socioeconomic Ratings of Girls, Boys, and the Total Research Group. . . . 104

LIST OF FIGURES

FIGURE PAGE

1 General Scheme for Selection of High and Low Achievers 33

2 Block Designs used for Subjects with Expected Grade Placement Below 3.9 and Above 3.9 52

3 Basic Distinctions Between the Research Groups 62

4 Distribution of Boys and Girls Among the Four Research Groups 67

CHAPTER I

INTRODUCTION

One area of great concern for those interested in educable mentally retarded children has been the achievement of academic skills. As our society has been geared toward ever higher standards of educational advancement the plight of educable mentally retarded children in striving for minimal proficiency in academic skills has also become more pronounced. Customary attempts for the solution of this problem have been provided by the schools in the form of special education classes for the educable mentally retarded or specially designed teaching methods.

Yet the provisions through the schools may not be enough. More inclusive avenues to the child with achievement limitations may have to be found. As of now we have little systematic information on the role parents play in influencing the school achievement of their educable mentally retarded child. Recent findings by child psychologists and family sociologists suggest that exceptionality in a child may have reciprocal effects on the parent-child relationship. Thus not only the retardation of the child as such but also the parents' way of dealing with a child of limited academic potentials may be a determinant factor in the progress the child is able to make in his school subjects.

The present study of parents with educable mentally retarded children is based on a conceptual framework with seven basic assumptions:

1. Parents, in general, are important contributors to the

knowledge, skills, attitudes, and general behavior patterns which their children develop.

2. Parental styles of interaction with the child are initiated and fashioned according to dominant influences in the social environment of the parent.
3. One important catalyzer in our American society is the striving toward achievement and success, though the emphases vary within the different socioeconomic strata.
4. Retardation in a child implies an inability to reach the achievement norms which have been set by society.
5. Parental awareness of the child's achievement deficit may only gradually become articulate during the early years of the child.
6. Failure to progress in a regular school and placement in a special class for the educable mentally retarded may lead the parent to regard school achievement as a sensitive factor in their interaction with the child.
7. Parental attempts to teach the retarded child may reflect special modes of parent-child relationships which, in turn, may further influence the child's achievement in school.

Objectives of the Study

The study represents an attempt to probe into the home learning situation of the child. The procedure selected was to evaluate the parent in the role of a teacher of his slowly learning child. The purpose of the investigation was to identify forms of parental teaching which have a bearing on the child's progress in school.

As this study uses new approaches in exploring achievement patterns of educable mentally retarded children, the development of interview procedures and of a test on maternal teaching techniques is considered an important aspect of the investigation. These instruments have been structured to provide answers to the following questions:

1. Which aspects of parental information on home activities of the child have indicated relationships to the school achievement of the child?
2. Which techniques of maternal teaching have indicated relationships to the school achievement of the child?
3. In which areas do parents of high and low achievers of two different socio-economic levels differ in their procedures of teaching the child?

CHAPTER II

REVIEWS OF THE LITERATURE

The study represents a complicated interrelationship of important issues from various fields. It draws together many aspects of knowledge, such as

general education - general sociology

psychological theories of motivation - statification theories

mental retardation - family sociology

special education of the educable mentally retarded - interactional theories of families with handicapped children

methodology of investigating parent-child interaction.

For the purpose of an orderly presentation of references to these aspects the review of literature will be reported in five main sections: (1) general theoretical background; (2) definition of the terms "mental retardation" and "educable mentally retarded"; (3) parental reaction patterns of the educable mentally retarded child; (4) methodological approaches to studies on parent-child interaction; (5) summary of the reviews of the literature.

General Theoretical Background

The great importance of parents in the development of their children is frequently referred to in scientific investigations of human behavior. The fact that parents are usually the first socializing agents and that their relations with the child are of relatively great permanency, stability, and intimacy has been described by Bossard (1960, pp. 72, 73) as the unique characteristic of parental influences on children.

Parsons (1955) has emphasized the far reaching effects which parents have in orienting the child to the structure of the larger society:

> . . . the parents, as socializing agents occupy not merely their familiar roles, but these articulate, i. e. interpenetrate with their roles in other structures of the society . . . the child is never socialized only for and into his family . . . but into structures which extend beyond this family, though interpenetrating it. (p. 35)

Parsons' description of socialization in terms of parental interpenetration with structures of the larger society and the child suggests that in the process of parent-child interaction there are tendencies toward individuation as well as toward a common orientation with other families. Since individual families represent such variegated pictures of differences in parent-child relationships the lines of convergence in orientation are not always obvious. Thus it is necessary to view parental behavior in terms of dominant trends of the larger social structure to which they are connected.

Williams (1960) took as his frame of reference the value system of the American society. In analyzing the hierarchy of orientations he commented on the predominant trend toward achievement: "First, American culture is marked by a central stress upon achievement, especially secular occupational achievement" (p. 101). A quotation by Frank (1948) indicates how such generalized striving for achievement is impressed on the child from early childhood on:

> In a competitive society the individual is from early years taught that his value to society and the worth to himself are to be judged by the measure of his

> achievements, not merely as his temperament and gifts may direct him, but as set by the prevailing pattern of society" (p. 32).

Parental ways of motivating the child to achieve have been the topic of numerous investigations by McClelland and the adherents to his theorems on achievement motivation (McClelland et al. 1953, 1955, McClelland 1960, Atkinson et al. 1958, Rosen 1956, Rosen and D'Andrade 1959). McClelland (1960) defined achievement motivation (n achievement) in terms of "anticipated or past achievement satisfactions or dissatisfactions" (p. 585). He considered n achievement as a cumulatively reinforcing process which is most effective when started in early childhood.

Using a modified form of the Thematic Apperception Test (TAT) McClelland (1953) determined different degrees of n achievement and tried to explain them in terms of differences of parental pressure for achievement. Various variables were elaborated by the McClelland group to determine their relative importance for training in n achievement, such as, setting standards of performance, parental timing of independence training, reinforcements by means of parental approval and disapproval, balance of the relative power of father, mother and child within the family system, allowing the child autonomy of decision. The cyclical interrelationship of these variables was described by Rosen and D'Andrade (1959, p. 217):

> The cycle begins with the parent imposing standards of excellence upon a task and setting a high goal for the boy to achieve. As the boy engages in the task they reinforce acceptable behavior by expressions of warmth (both parents) or by evidences of disapproval (primarily mother). The boy's performance improves, in part because of the greater concern shown by his parents and expressed through affective reaction to his performance and greater attention to

> his training. With improved performance the parents grant the boy greater autonomy and interfere less with performance (primarily father). Goals are then reset at a higher level and the cycle continues.

According to McClelland et al. ethnic ideologies contribute much to the particular type of achievement striving which parents impress on their children. Strodtbeck (1963) has specifically commented on the persistence of Jewish parents in articulating the values of learning to their child at an early age.

The studies on achievement motivation, however, scarcely considered the situation of children with limited abilities for achievement. Distinct handicaps in a child would certainly set a ceiling for achievement training and would require the parents to modify their approach to the child.

Kohn (1963) used the context of occupational conditions among parents of the middle class and of the working class to show that different social groups have different collective orientations in prompting their child to "get ahead." Following is a summarized outline of Kohn's distinctions between the working conditions of parents and the relation of these conditions to parental concerns and values for child training.

But Kohn's description are only aimed at broad generalizations of socioeconomic differences. They do not indicate alternative valuations for children of different social classes who fall short of parental expectation. For instance, inability of a working class child to follow explicit rules, or lack of ability for self-direction on the part of a middle class child would certainly pose special problems for the parents, and require them to consider different values in their training of a limited child.

Table 1

Effects of Social Structure Upon Behavior

Aspect	Middle Class Occupations	Working Class Occupations
Content of Occupational Activity:	Dealing more with manipulation of interpersonal relations, ideas, and symbols.	Dealing more with things.
Working Conditions:	More self-directed.	More subject to standardization and supervision.
Prerequisites for success:	More dependent on one's own action; greater self-reaction required.	More dependent on collective action (unionized industries); success is dependent on following explicit rule set down by someone in authority.
Values stressed in socialization of the child:	Curiosity, happiness, consideration.	Obedience, neatness, cleanliness.
Parental concerns in child-training:	Internal dynamics, such as motives and feelings.	Conformance to externally imposed rules.

Adapted from Kohn (1963) "Social Class and Parent-Child Relationships."

Stryker (1959) has used the term "symbolic interaction" to refer to mechanisms of communication through which a child learns to orient himself to the values of his parents. Stryker maintains that symbols, such as gestures and words, are significant determinants of the dynamics of parent-child relationships. He considers symbols as special devices which condition the child to persistent patterns of social behavior.

At the Urban Child Center of the University of Chicago, Robert Hess and his collaborators are presently investigating the effects of maternal language on the cognitive development of preschool children (Hess 1965, Hess et al. 1965, 1966, Shipman and Hess 1966, Brophy et al. 1966, Bear et al. 1966.) Hess (1966, p. 1) characterizes the objectives and main assumptions of this research in the following way:

> . . . a study which attempts to apply socialization theory to analysis of the growth of intellective resources and educability. It is based on the argument that early social experience shapes cognition, that the most significant figure in the organization of this experience of the child is his mother or mother surrogate, and that the efforts of her interaction with the child induce enduring forms of information processing strategies in her offspring.

The special focus in these investigations is on Negro children from culturally disadvantaged backgrounds caught in a cycle of achievement inhibitions. Parents from the low socioeconomic class have been found to use restricted codes of communication and sterotyped verbalizations. When they make behavior rules for the child they use mostly short imperatives to enforce grossly defined norms; then they expect passive compliance on the part of the child. Alternatives and consequences of action are rarely pointed out to the child. Consequently, the child is apt to resort to impulsive responses devoid of reflective thinking (Hess et al. 1966).

In contrast, parents of children in a higher class have been found to use more elaborate codes of communication. They present behavior rules in the context of the child. Decisions are individualized, subjectives states of the child are considered and alternatives of action are pointed out to the child. This encourages reflective behavior, it stimulates initiation of action and assertiveness (Hess and Shipman 1965, 1966).

Brophy, Hess and Shipman (1966) emphasize that it is the lack of specificity in the verbalizations of lower class mothers which produces a frustrating learning atmosphere for the child because (1) the child is not related to visible goals, (2) the learning responses in this environment are not rewarding in themselves, and (3) the corrective feedback is lacking which could otherwise help the child to control his actions.

The socio-linguistic studies of the Chicago group suggest that parental modes of communication have an important effect not only on children from different social groups but also on children with specialized limitations such as mental retardation. Further discussion of these studies will be found in the section on Methodological Approaches to Studies on Parent-Child Interaction.

One study which relates pertinently to parental communication with retarded children was reported by Mercer and Dingman (1965). Their inquiries were aimed to determine how systematic parents were in their socialization practices, and how this would relate to the child's level of educability in school. The research sample consisted of 972 families with children of school age. It contained an unproportionately large percentage of lower class Mexican children who had been found in need of special education for the mentally retarded. The interviews which were conducted with the parents included questions about the forms, extent and regularity of communication between parents and their children. For instance, the mother was asked whether she read to her younger child, or taught him simple skills such as saying the alphabet, or whether she discussed with him daily the problems which were encountered. The special finding of the investigation pertained to the lower class Mexican group whose children had been found intellectually most deviant. Their parents reported significantly fewer attempts at systematic socialization and significantly less talking with their children about problems.

Summary:

The purpose of this section has been to emphasize basic concepts from literature which may provide a general theoretical background for the study. The following suppositions were elaborated: Children are greatly influenced by their parents. It is the parent who leads the child to the larger social structure. One important common orientation involving parents and children is the striving for achievement. Parents differ in their approaches to motivate the child toward achievement. Achievement training of the child is importantly influenced by socioeconomic factors. Symbols, especially those represented in the mother's communication with the child, contribute significantly to the achievement level of the child.

Definition of Terms

Mental Retardation

Mental retardation is a broadly generalized term which subsumes a great number of different behavior anomalies. Heber's definition

(1961) seems to come closest to the basic features of mental retardation upon which the majority of experts agree (Scheerenberg 1964):

> Mental retardation refers to subaverage general intellectual functioning which originates in the developmental period and is associated with impairments in adaptive behavior.

Educable Mentally Retarded

The term "educable mentally retarded" (EMR) designates a classification for educational purposes. According to Kirk (1962) the EMR demonstrate "minimum educability in the academic subjects of the school," and typically test within the IQ range 50 - 75.

Jordan (1963) has offered a definition of the term "educable mentally retarded" which specifies the psycho-educational characteristics of this group:

1. The rate of learning is slow.
2. Retention is poor . . .
3. Language abilities are deficient.
4. Language tends to be concrete, with lessened ability to handle the abstract.
5. There is a lowered tolerance for frustration.
6. The attention span tends to be short.
7. Imagination and creativity are weak, leading to a predisposition to preseveration and resistance to change.
8. There is relatively little spontaneous learning . . .
9. Transfer and generalizations occur less often and less spontaneously."

Jordan's descriptions point to the deficits in learning ability in the EMR child. This suggests that interpersonal communication would be in many ways affected by the learning difficulties of such a child.

There are many situations in the life of a child, in school and even more so at home, where he is expected to learn. Parental reaction to the learning difficulties of the child would therefore seem to deserve systematic consideration. It would seem very important to know in which ways parents help or hinder the learning of their EMR child.

Summary:

In this section on "Definition of Terms" widely recognized characteristics of mental retardation and of the educable mentally retarded have been noted. Heber's definition stressed in a generally applicable way the reduced intellectual functioning of the retarded. The sectional definition quoted from Kirk emphasized the child's minimum potential for academic schooling. Jordan described specified deficits in learning processes of the EMR child. The implications suggested by the effect of parental reactions to the learning difficulties of the child have been noted.

Parental Perceptions of the EMR Child

According to official estimates (Scheerenberger 1964), the educable mentally retarded represent 86% of the entire population of retardates, or approximately 4,600,000 individuals in the U. S. (This figure is based on the 1962 census of the President's Panel). As compared with the so called "normal population," the EMR indicate many deficits in ability. But as compared to individuals with more pronounced limitations the EMR are relatively receptive to influences in their environment.

But inspite of the large numbers involved and inspite of the greater responsiveness of the EMR, the special dynamics of parental interaction with the EMR have hardly been investigated. Current literature still tends to refer indiscriminately to parents of retarded children without regard to the degree of retardation. Preference has been given to systematic studies with severly mentally retarded children. No profiles of interaction characteristics of parents with EMR children have been elaborated so far. Therefore this section of review of the literature will have to draw from general references on parents of retarded children, or studies on families with severely retarded children, and deduce from them points which would properly describe parental reactions to the educable retarded child.

Ryckman and Henderson (1965) employed a generalized dimension of comparisons to review the literature on child-parent relationships and to identify basic meanings which a child may have for his parents. Below are excerpts of Ryckman and Henderson's reviews, including also elaborations of the special meaning which a retarded child may have for his parents:

> 1. The parent views the child as a psychological extention of himself . . . If something is 'good' about the child, it is a reflection of the 'good' in one or both of the parents. Conversely, if something is 'bad' or 'wrong' with the child it is a reflection of the same trait in one or both of the parents.
>
> 2. The child is a means of vicarious satisfaction to the parents (the parents hope that through the child their own wishes and desires will be fulfilled) . . . core problems of parents of retarded children include specific mention of the disappointment, loss, and sense of bereavement associated with having a child which cannot fulfill the parents' wishes and desires.
>
> 3. The parents can 'transcend' death through their child . . . they project themselves through their children into a future they will not live to see . . . (parents of retardates may become very concerned about the future of their child).

4. A . . . meaning of children for parents is the concept of a personalized love object . . . parents (of retarded children) feel guilty, at least in part, because they do not love their defective child as they believe they should.

5. Parental feeling of worth in meeting the dependency needs of the child . . . (overprotectiveness is a means of compensating for the child's handicap).

6. Negative feelings about the limitations and demands of child rearing . . . retarded children are an added burden to parents (increasing realistically the demands and limitations on the parents).

According to the references listed by Ryckman and Henderson special variables seem important in determining the emotional involvement of the parent with the child, such as personal adjustment of the parent, and social adjustment of the child. Farber and Ryckman (1965) mentioned the differential effects of the sex of the child and of the parent, etiology of retardation as perceived by the parent, relationships within the family and supportiveness of the surrounding community.

The differentiation in parental perceptions of the EMR child from different social classes is to be specially considered here. There are many indications that parents of the higher social classes are more observant of their offspring. Green (1953) made the observation that middle class parents were constantly comparing their child's development with that of neighbors' children; "everything (the child) accomplishes or fails to accomplish becomes inevitable part of the family's attempt to maintain or improve its standing in the community" (p. 296). Mead (1965) mentioned that the competitiveness in our society, which would especially refer to the middle class, would make the mother feel that she cannot love her child completely unless he measures up to his contemporaries. Kanner (1952) stated, with regard to the individualized culture, that the thought of being or seeming different from others was considered abhorrent, especially when the difference was regarded by the group as a deficit. Michaels and Schucman (1962) commented especially on the differences in intelligence between higher class parents and their retarded child. This study suggests that much higher aspirations would be set for retarded children in such families.

A different situation would obtain with parents and their children from the lower class. Involvement in the household of a big family, or in outside work, and many worries make the parent less observant of the individual child (Finlayson 1941, p. 43). Lowered aspirations on the part of the lower class parent would make him less inclined to set up high standards or to make long range plans for the child (Sutherland 1951, p. 154, Hyman, 1953, p. 427, 438). The intelligence of the lower class parent would be closer to that of EMR children (Baer 1966)

A very extensive and detailed summary of investigations of families with severly retarded children has been made by Farber and Ryckman (1965). A series of studies of families with handicapped children led Farber to distinguish five stages of crises which may be experienced:

1. The parents ignore the child's abnormality, and the family life is carred on in regular patterns.
2. The parents come to recognize the child's handicap as a problem interfering with normal family life.
3. The retarded child, though older, may now receive special protective care, while siblings may be expected to exercise responsibility beyond age expectations.
4. The family problems in connection with the retarded

child's care may estrange family members from their previous community affiliations, and make them want to seek out different groups.

5. If the retarded child is perceived too great a burden for orderly family life, the child is eliminated from the family and placed in an institution.

It appears that at least the first two stages of Farber's conceptual model of family crises could also be pertinently applied to parents with educable mentally retarded children. Farber labels Stage One as "Handling Deviance Within Existing Family Arrangements." This situation would seem to be relevant to parental perceptions of the EMR child at the pre-school level. Kirk (1962) has remarked of EMR children:

> Although they are slightly delayed in talking, language, and sometimes walking the retardation is not so great as to cause alarm on part of these parents. Most of these children are not known to be mentally retarded until they enter school and begin to fail in learning the required subject matter (p. 105).

Dalton and Epstein (1963) have commented that slow progress in a pre-school child is usually interpreted by the parent as a temporary condition; 'the child will catch up.' Slight improvements on the part of the child are greeted as signs of normality. Only as the child reaches the age when more complex skills are expected, such as meaningful language, do the parents gradually discern the anomaly in the child. At the same time, they may turn hostile on the professional worker making the diagnosis, and may defensively point to little skills of the child to prove that he is normal.

Farber has labeled Stage Two of the family crisis as "Distortion of Coalition as Basis for Definition of the Problem." In applying this stage to the EMR child the role of the school would appear to be all important. Dalton and Epstein refer to parental anticipations of difficulties the child may experience in school. They fear he may be conspicuous and require special attention and consideration. As attempts in schooling the child bring cumulative evidence of the child's retardation, the full realization of the facts may come as a hard blow to the parent. In contrast to parents of children whose retardation was recognized at birth, these parents with belated recognition of the child's retardation may find many reasons for blaming themselves for "neglecting the child in infancy, for failing to teach him what he should know, failing to provide playmates, waiting too long to get help" (Dalton and Epstein 1963).

Summary:

A perusal of the literature indicates that few systematic attempts have been made to distinguish particular interaction patterns of parents with EMR children. From a generalized review of possible meanings of a child to his parents were extracted the social class differences which may show the greatest discrepancies among parents of EMR children. From Farber's conceptual model of family crises two stages were elaborated to show their possible relevance to parental reactions to the young EMR child, especially with regard to pre-school characteristics and the role of the school in the definition of the child's retardation.

Methodological Approaches to Studies on Parent-Child Interaction

A special aspect of the literature on parent-child interaction has been the complex problem of identification and assessment of significant factors. Inspite of the great wealth of materials collected by means of questionnaires and interviews, the selected perspective of this review section is on observational methods. These are methods used comparatively infrequently, and only a few representative examples will be described here.

Charlotte Buehler (1940) working in Vienna, Austria, in the early thirties has been instrumental in developing a system of observational methods. She elaborated records on the personal interaction of 17 families from the upper middle class with one to three children of school age. Her objective was to show a relationship between the development of character and patterns of family interaction.

A group of trained psychologists were evaluated according to their compatability with the families in question, and then they were individually assigned to visit "their" families twice a week for three to six months. The visits took place at many different times of the day. The psychologists had been previously trained to give detailed reports on family interactions immediately following their visits. In several cases two observers were present to establish the reliability of the records.

The available descriptions were then scrutinized according to a stringent classification system. Distinctions were made in terms of categories, such as situation of interaction, persons interacting, initiation and reaction of personal contacts, emotional quality of contacts, and perceived purposes of interaction. The data for each of six families were summarized in terms of observed frequencies and were also represented graphically. The findings for each family were then condensed into verbal descriptions of basic tendencies in family interaction and their effect on the child. Buehler reported on great differences among the families, especially in terms of emotional contacts, incentives, and guidance.

Buehler's elaborate efforts demonstrate the difficulties in establishing standardized procedures for evaluating a great variety of situations of interaction and personal relationships in their relevance to child behavior. Since the families preferred to choose different activities, it was almost impossible to compare the subjects along dimensions of one activity per child at a time. Sibling rivalries, as compared to families with only one child, also seemed to interfere with systematic observation.

Merrill (1946) arranged for a more structured observation in her study on mother-child interaction. Her sample consisted of thirty pre-school children, and their mothers, representing the upper middle class. The children had been matched according to age and sex. The mothers were led to believe that the research was merely concerned with forms of play behavior in a child. The instructions to each mother were to spend half an hour with her child in a standardly equipped playroom. The purpose of the first session of the study was to establish typical forms of parent-child interaction. For the second session the subjects were divided into an experimental group and a control group. The mothers of the experimental group were told that the investigators thought the child should have demonstrated a much higher level of constructiveness, imagination, and maturity in play behavior than had been evidenced, and that they hoped to see more superior performance for the second session. However, the control mothers, were not informed about the investigators' impressions, but were simply told to proceed as they had in the first session.

The behavior of mother and child was observed through a one-way screen. A previously developed system of behavioral categories was used, and notation for each category was made within five second intervals. Merrill's behavior categories were as follows:

> Mother behavior: Out of contact with child, contact, playing interactively, teaching, helping, structurizing, directing, interference, restriction, interference by structurizing, criticism, praise or affection, non-cooperation.
>
> Child behavior: Playing independently, playing and/or conversing, playing interactively, seeking information, seeking help, child suggests, seeking attention, seeking contact, directing, interference, restricting, criticisms, seeking praise, praise, asking permission, indications of anxiety, cooperation, non-cooperation.

The results of the study indicated a steady progress in behavioral variables for the control group; but a significant increase of observed frequencies of directing, criticizing, and interfering behavior on the part of the mothers of the experimental group.

In a follow-up study of Merrill's research, Walters et al. (1964) used procedures identical to Merrill's, but selected a sample of 40 lower class mothers with their pre-school children as the subjects. For the specially motivated group, significant increases in "contacting," "directing," and "structuring" were observed; and a significant decrease was observed in "mother being out of contact with the child."

In order to determine the effect of socioeconomic differences on the investigation, Walters compared the results from his lower class group with obtained frequencies from the higher class sample of Merrill and of subsequent investigators using identical categories, namely Bishop (1951), Schalok (1956) and Zunich (1961). Walters reported that the socioeconomic differences in obtained frequencies for the various categories were not only statistically different, but even dramatically different, indicating much higher frequencies of observed behavior for the middle-class groups.

One great problem of the observational approach which Merrill established was the fact that the mothers did not know what they were expected to do with the child, especially since they had been told the study was to demonstrate the play behavior of the child. In the case of the subjects of the groups of Merrill, Bishop, and Zunich the children had been attending specialized nursery programs, and they and their parents were familiar with the laboratory setting where the observations were conducted. This training program and the familiarity of the surroundings may have been a special incentive for mothers and children to be articulate in their interaction with each other. For the lower class sample by Walters et al. the study was conducted in an environment unfamiliar to mother and child, which may have inhibited the subjects from demonstrating themselves in the situation. There is also no clear indication of the gains expected in child behavior, as defined by Merrill, which might have been related to increased motivation on part of the mother.

Hess et al. (1965, 1966) have made an inclusive attempt to take into account structured observation, socioeconomic differentiation, specified expectation for the mother's role in the interaction, and the relation of interaction to expected gains in child behavior. The study of Hess et al. is still in process, but information is available on 163 Negro mothers with four-year-old children from four different socioeconomic levels. Children with indicated physical or mental abnormalties were not included in the study groups.

> Extensive preliminary assessments were used to determine the representativeness of each mother-child subject for the investigational groups. Home-visits and interview schedules helped to yield information on socioeconomic level of the parent, daily schedules, amount of available cognitive stimulation in the home; the mothers were tested with WAIS, and the children with Stanford Binet to get indices on their level of intellectual functioning; the children and their mothers were given the Sigel Conceptual Style Sorting Tasks; a Parent Attitude Evaluation required the mother to state her reaction to problem situations involving both mother and child.

The tasks which were selected for mother-child interaction were preceded by specific instructions on the use of the toys involved. The mother was encouraged to use as much time as she felt necessary to help the child do the required activities. A special attempt was made to lead the mother to teach her child to verbalize his observations. The tasks used for the observation of interaction were (1) toy sorting, (2) block sorting, (3) "Etch-A-Sketch."

1. Toy Sorting: The mother was required to teach her child to sort a number of toys by type of toy and color.
2. Block Sorting: The mother had to help the child to distinguish between blocks of different heights, and blocks with different identifying marks.
3. "Etch-A-Sketch:" This involved cooperative turning of knobs on a device for linear designs. In order to succeed with the tasks the mother had to specifically explain to the child which direction of line would go with a particular turn of the knobs, otherwise the prescribed linear designs could not be produced.

After the mother had taught the child a task, one of the investigators would test the child on his performance of the task. The verbalizations of the subjects were sound-taped and the behavioral descriptions by the observers, watching through a one-way window, were recorded on different tapes. Behavioral descriptions were coded according to generalized categories, such as gestures, physical contacts, correctness of responses. But the special focus in the analysis of the data was on linguistic elements in maternal styles of teaching. Particular attention was given to determine the specificity of language the mother used in her teaching of the child.

The presently available results of the Hess et al. investigations indicate positive correlations between socioeconomic level of family, IQ of mother and of child, ability for classificatory distinctions in terms of Sigel task scores,specificity of language of the mother and performance scores of the child. The lower class mothers were characterized by their stereotypic use of language; they failed to give explicit instructions to the child, and thus the child was inclined to use mere guessing for his performance of the task.

One of the possible limitations of the studies by Hess et al. would be the unfamiliarity of mother and child with the environment where the tests were conducted. The mere "machinery" of the investigations may have been overwhelming - especially for the mothers and children from the lower classes coming from very restricted living conditions. This may in some part have led to a reduction in verbalization and to a restraint in maternal behavior. Also, the motivation for teaching the particular tasks to the children may not have been sufficiently explicated to the mothers, with the result that they did not see any particular reason for applying their efforts to teaching the child.

Summary:

In this section a review of methodological approaches in child-parent interaction studies has been presented. The special focus of the studies was on direct observation. A few representative studies were chosen to explain the merits and difficulties of particular experimental designs. For the Buehler study the great variability of situations and forms of personal interaction posed complex problems for categorizations. For the Merrill study the restricted dimension of mother-child interaction in play behavior under two different forms of motivation, seemed effective; however, the mothers were not sufficiently informed about their role in the interaction, and the concept of play behavior was not relevantly related to the efforts of motivating the mothers. The Hess study appears to set a good example for systematic control of relevant variables applied to a specified behavioral theory; however the low responding subjects may partly have been overwhelmed by the mere "machinery" of the investigations. Moreover, working with a pre-school population, Hess did not distinguish between lower-class mothers of achieving children and those whose children were not doing adequate school work.

Summary of the Review of Literature

The purpose of the reviews of literature was to refer to representative studies which would explicate the basic concepts, definitions, perspectives, and methodological approaches for the understanding of the present investigation. The points especially stressed in the reviews were: (1) although achievement striving is an important trend in our society, parents use different forms of achievement striving for their children; (2) mental retardation in a child implies a deficit in achievement, but for the EMR child minimum school achievements are still possible; (3) factors in the parent as well as in the child may determine the reaction patterns which a parent develops toward his EMR child; (4) specified control is needed of the contents, role of persons, differentiating dimensions, and of observed parent-child interaction, in order to make it a relevant means of investigating the basic assumptions of the study.

CHAPTER III

PROCEDURE: SELECTION OF THE SUBJECTS

Community Characteristics of the Sample

The investigation was conducted in Saint Louis County, a suburban community with an approximate population of 700,000. The County spreads like a wide semi-circled mantel around the City of Saint Louis, Missouri. It contains recognized sections with estates of higher class dignitaries, large areas of newly built middle class homes, and also concentrations of lower class houses and outskirt slums. The homes of EMR children whose parents served as subjects for the investigation were distributed over this wide region, and the home visits led into variously different neighborhoods.

The School Administrative Framework

The Special School District of Saint Louis County provided the administrative framework for the investigation. It made the records on the EMR children and their families available, and negotiated with the parents to get the needed cooperation for the study. One of the curriculum consultants of the Special School District served for two summer months as research assistant to the project and helped to facilitate the contacts with the personnel of the District.

At the time of the initiation of the study, in May 1964, the Special School District of Saint Louis County administered 117 special education classes for retarded children and adolescents. Fifty-four of these classes were for EMR children at the primary and intermediate level, representing approximately 800 children.

Criteria for Selection of the Subjects

In a preliminary selection procedure only four criteria were applied:

Age range:	Chronological ages 9-00 to 12-11
IQ range:	Stanford Binet or WISC IQ 55 to 75
Sex:	Boys and girls
School Attendance:	No less than two years of attendance in a special education class of the Special School District.

Following these generalized categories 237 subjects were identified. They were all listed, and a record research was conducted on all of them. The objective was to exclude from the investigation any subjects with concomitant special characteristics which might further influence the interaction process between parents and their child. The criteria for the refined selection procedure were then as follows:

Type of Retardation:	Special care is taken not to include children with observable or diagnosed organic involvement.
Speech:	Evaluations by the Special School District Speech Clinic indicate that the child is able to make himself understood at least to his parents.
Family Characteristics:	Intact family; both parents are present in the home; the child is living with his natural parents.
Race:	White
Siblings:	Not more than one special class student per family is to be considered for the investigation. Preference is given to families with older non-retarded siblings attending regular classes.

Table 2 presents an overview of subjects excluded due to refinement of the selection procedures. The remaining group of 100 subjects constituted the general research population.

Socioeconomic Differentiation of the Subjects

A description of the father's occupation was contained in the social history of all the subjects. This information was sufficient for reference to the scaled occupational categories of the Socioeconomic Index by Reiss-Duncan (1961). The socioeconomic ratings on hand of the listed occupational distinctions were then easily determined. The distribution of the 100 socioeconomic ratings ranged from 6 to 92. The distribution indicated a bimodal tendency for the research population. A rating of 31 was arbitrarily chosen as a boundary line between the "higher" versus "lower" socioeconomic group.

Achievement Differentiation of the Subjects

The files on each child contained the results of individual intelligence tests which had been administered by qualified psychometrists of the Special School District Evaluation Clinic. The majority of the tests were recorded in terms of Stanford Binet scores or WISC scores. A comparison between full scale scores on the WISC and the verbal scores did not reveal statistically significant differences. For two subjects, only scores on the Goodenough 'Draw-A-Man' test were available at the beginning of the research. Yet subsequent tests on these two subjects yielded almost identical scores on the Stanford Binet and on the WISC. For a third child,

Table 2

Primary and Secondary

Characteristics Leading to Exclusion of 137 Subjects out of 237

Characteristics	No. of Children Exhibiting this Characteristic		% Negro	% White
	Primary Characteristic	Secondary Characteristic		
Observed or diagnosed organic involvement	21	7	6.6	19.8
Serious speech handicap	29	4	3.3	29.0
Family not intact	50	21	49.5	36.4
Non-White	33	18	100.0	----
More than one child in the family is in a special class	21	12	17.5	16.4

White population	104
Negro population	33

only evaluations on the Ammons Test were listed. Later retests of this child indicated significant decrements with scores below the established IQ range. However, since this discrepancy was not known at the time the home visits were conducted, the child was included in the study.

For all subjects the most recent scores were used to estimate each child's current mental age. Through application of the formula by Horn (1941), i. e., XA = .33 CA + .67 MA, a measure of expected achievement age was obtained which was recorded in terms of expected grade placement.

The Primary II Battery of the Metropolitan Achievement Test had been administered by the schools to each child just prior to the data collection. The achievement scores on the battery represented a measure of obtained grade placement. The investigator felt that knowledge of the subjects' achievement scores might influence the contacts with the parents during the home visits. Therefore a secretary coded the scores of expected grade placement and the obtained grade placement from the Metropolitan Achievement Test. Thus the identity of high achievers and low achievers was kept from the investigator and her assistants until all the data had been collected and a content analysis of the data had been completed.

The discrepancy between expected grade placement and obtained grade placement yielded a score of achievement deviation. Since the subjects represented a wide range of grade levels, it was thought necessary to show the achievement deviation in relation to the expected achievement. A scattergram for each of the two socioeconomic populations was used to demonstrate graphically the distribution of achievement deviation per expected grade levels of the subjects. Cases falling at either grade levels below 2.0 or above 4.9 were so densely clustered in achievement deviation that at these levels high achievers could not be reliably distinguished from low achievers. Ten subjects with these values were therefore excluded from the list of prospects for the investigation. The remainder of the population was then scrutinized in terms of extremes in achievement deviation. Subjects with the smallest achievement deviation per grade level were selected as "high achievers." Conversely, subjects with indicated large achievement deviation were selected as "low achievers." The remaining subjects which represented "average achievers" were disregarded in the research. A graphical schema of the selection procedure is represented in Figure 1.

Fifteen high achievers versus fifteen low achievers were selected from the higher socioeconomic population, and thirteen high achievers versus sixteen low achievers from the lower socioeconomic population. The parents were informed about the investigation and its general objectives and were asked to participate in the study. For a variety of reasons only 36 out of 59 families were able to take part in the project. Table 3 lists the reasons for the unavailability of the 23 families. Only about one third of the unavailable families represented refusals. Moreover, the nonparticipants were not drawn excessively from high or low achievement or socioeconomic levels. Thus unavailability did not appear to appreciably bias the sample characteristics.

Tables 4 and 5 present lists of paternal occupations of the high and low achieving EMR children. Although the median ratings for the

Figure 1

General Scheme for Selection of High and Low Achievers

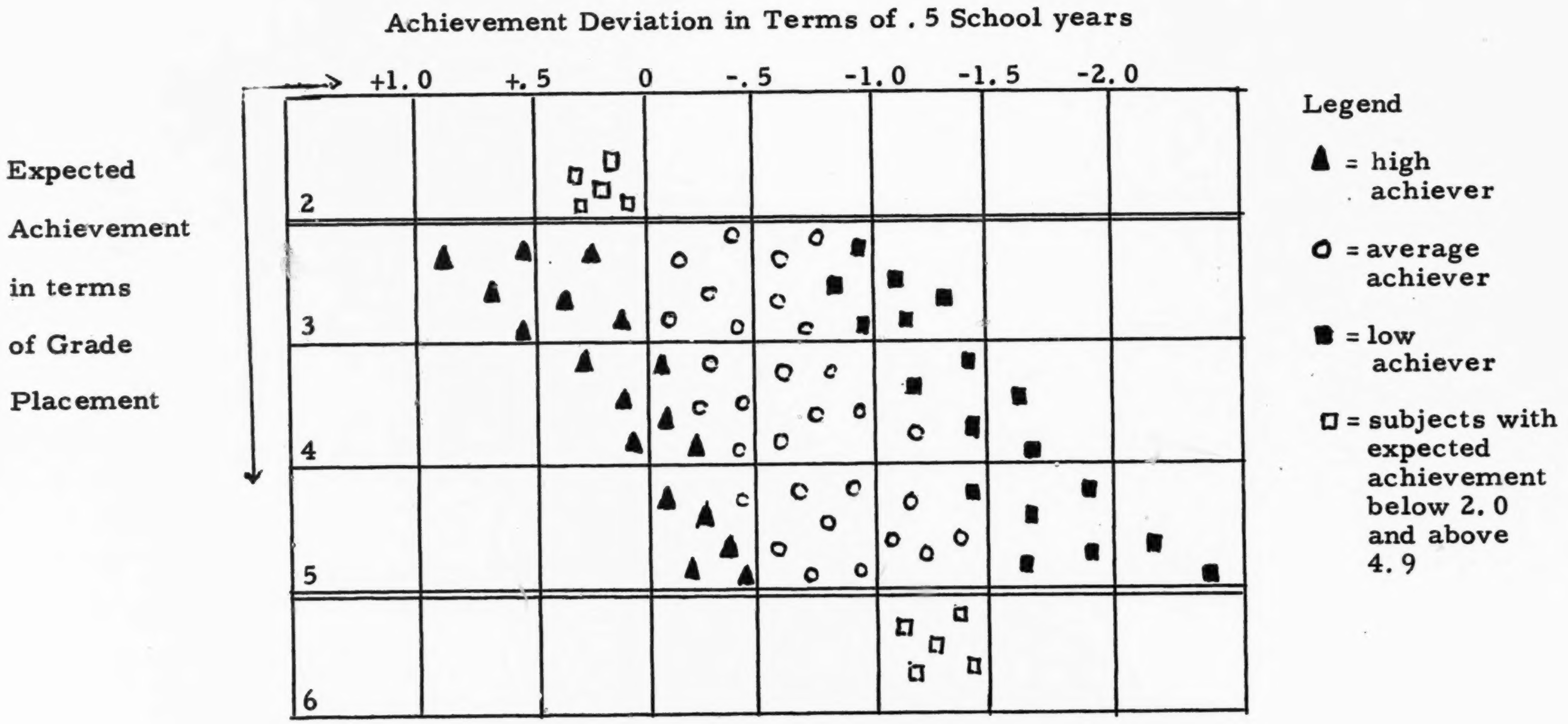

Table 3

Reasons for Parental Unavailability for the Investigations

Reasons	Frequency	Achievement Level		Socio-Economic Level	
		High	Low	High	Low
Unable to contact the parent	6	3	3	2	4
Parents expressed unwillingness to participate	8	3	5	4	4
Additional information on subject disqualified parent from participation	5	1	4	4	1
Auto accident	1	1		1	
Moved out of town	1	1		1	
Mother unable to read test instructions	1		1		1
Mother hard of hearing	1	1			1
Total Number of parents unavailable	23	10	13	12	11

lower socioeconomic groups are identical - 19 for both high and low achieving subjects, the median for the higher socioeconomic groups differ markedly. The median for high achieving subjects is 65 with a range from 39 to 85; for low achieving subjects the median is 48, with a range from 32 to 67. Clearly in the higher socioeconomic groups the occupational levels of high achieving subjects were higher than those of fathers of low achieving subjects.

Table 4

Fathers' Occupational Classification of High Achieving Subjects

Lower Socioeconomic Group	Socio Econ. Rating	Higher Socioeconomic Group	Socio Econ. Rating
Dish washer - service worker	11	Lumber Salesman	39
Operative - Metal Manufacturing	16	Retail Trade	39
Laborer - beverages	16	Manager wholesale trade	59
Operative in construction firm	18	Manager - retail trade - hardware	61
Auto mechanic	19	Salesman - manufacturing	65
Operative - beverages	19	Technician - bell telephone	65
Craneman	21	Combustion engineer - draftsman	67
Shipping and receiving clerk	22	Official manufacturing	79
Machine operator	22	Manager - banking and other finance	85
Median Socioeconomic Rating of High Achievers from the lower Socioeconomic Class	19	Median Socioeconomic Rating of High Achievers from the higher Socioeconomic Class	65

Classification According to Socioeconomic Index by Reiss, Duncan et al (1961)

Table 5

Fathers' Occupational Classification of Low Achieving Subjects

Lower Socioeconomic Group	Socio Econ. Rating	Higher Socioeconomic Group	Socio Econ. Rating
Mover - nonspecified laborer	7	Delivery man	32
Service worker - janitor	9	Machinist	33
Maintenance - not specified	19	Plumber and steam fitter	34
Machinery - not specified	19	Automobile repair service	36
Total disability case	19	Medical technician	48
Pressman - operative paper prod.	19	Airplane mechanic	48
Shipping clerk	22	Clerical bookkeeper	51
Welder	24	Manager in construction work	51
Bus driver	24	Draftsman	67
Median Socioeconomic Rating of Low Achievers from the Lower Socioeconomic Class	19	Median Socioeconomic Rating of Low Achievers from the Higher Socioeconomic Class	48

Classification According to Socioeconomic Index by Reiss, Duncan (1961)

CHAPTER IV

PROCEDURE: THE PARENT INTERVIEW

Inception of the Home Investigations

The orientation for the present study was derived from a small Lutheran special education program for EMR children. The investigator, serving as a classroom teacher, had the opportunity to observe a few children in their patterns of school achievement over a period of more than seven years. She also had frequent occasions to meet the parents of the children, especially during regularly scheduled home visits.

A striking observation during the visits in the home was the initiative shown by several parents in providing a continuous program of home learning for their child. A questionnaire approach, used for individual parent teacher conferences, revealed that some parents had built up consistent routines of teaching their EMR child, and not only in the area of academic skills, but also in everyday forms of communication, household work, and recreation. The combined observations from the classroom and from the contacts with the parents suggested salient relationships between parental interaction with the EMR child and school achievement in a special education class.

Children and parents from variously different socioeconomic backgrounds in a large metropolitan area were drawn together into the small educational program at the Special Lutheran School. It was noticed that not only parents from favorable surroundings showed initiative and consistency in their dealings with the EMR child, but also parents from the lower class living under deprived circumstances. In order to examine further possible relationships between parental teaching and school achievement of the EMR child, it was decided to develop systematic procedures for interviewing parents and for testing maternal techniques in teaching the child.

Main Considerations for the Parent Interview:

The Parent Interview was designed as an exploratory instrument. Its purpose was to bring out a cross-section of parental interaction with the EMR child, especially such aspects of interaction which do not easily lend themselves to systematically controlled direct observation. The specific aim of the Parent Interview was to induce the parent to elaborate on activities which would be pertinently related to the EMR child's achievement in school.

In a comparable investigation of parental adaptability as related to social competence of trainable children, Cain and Levine (1961) incorporated hypothetical problem situations into their questions to the parents. This strategy of interviewing was to elicit parental responses which would be typical of their modes of dealing with the child. Similarly, Hess and Shipman (1966), in their studies on Negro pre-school children, used hypothetical problem situations for their questions to the parents to show that even the language style of the parental response indicated particular patterns of interaction with the child. In the present exploratory approach hypothetical problem situations were used especially for parental attempts of helping the child with simple reading or number activities in the home.

Development of the Interview Schedule:

Nine parents, mothers as well as fathers of EMR children, served as pilot subjects for the development of the Interview Schedule. These parents were exclusive from the sample for the family investigations. They had been chosen on the basis of distinguished patterns of school achievement of their EMR children and according to differences in socioeconomic background. These parents were willing to experiment with the investigator and the research assistant to work out the features for the Parent Interview.

It appeared that for an exploratory study scaled questions would unnecessarily limit the potential information on forms of interaction which the parents would be able to offer. Therefore a schedule with open-ended interview questions was devised. The try-out sessions with the parents were regularly tape-recorded and later discussed in detail with the research assistant. These try-out sessions also served as a training period for the research assistant in conducting the interviews.

Special directives for the Interview Schedule were:

1. To present the questions in a form which would be applicable to the fathers as well as to the mothers.
2. To word the questions so that they would be clearly enough understood by parents of different socioeconomic levels.
3. To stress the main aspects from which pertinent information could be drawn from the parents.
4. To provide a clearly structured sequence of interview questions for the facilitation of subsequent analyses.

Procedures for the Parent Interview

The interviews were conducted in the homes of the parents. In most cases it was possible to interview the father and the mother at the same time in different rooms of the house. The male research assistant customarily interviewed the fathers and the female investigator interviewed the mothers. The main contents of the interview questions were:

1. Encounter activities, i.e., what the parent does when the child comes home from school.
2. Regular activities with the child.
3. Other people who take time to help the child with his work at home.
4. Help with reading, especially when the child cannot make out a word.
5. Help with number work, especially when the child cannot figure out a problem.
6. Comparative views on parental help in home learning activities of a non-retarded sibling.

The interviews lasted usually from 25 to 40 minutes. The interviewers devoted their full time to conversational interaction with the parents, according to the specifications of the interview schedule. All the sessions were tape-recorded and transcribed verbatim for subsequent analysis of the content.

Content Analysis for the Parent Interview

Berelson (1952) has defined content analysis as "a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (p. 18). In his survey of studies using content analysis as an aid in research operations, Berelson commented on the special material of communications which is represented in the responses to open-ended interviews. The respondent here is asked to reply in length to specified questions; a probing for answers may often be required to obtain expected information. It would appear therefore that it is almost impossible to achieve systematic and objective analysis especially when no check-lists or other structured forms are provided for the respondent to fill in his answers.

Budd and Thorp (1963) have seriously concerned themselves with the problems of objectivity and systematic quantitative approaches in content analysis. They pointed to the individuated characteristics of content analysis and the pre-eminence of the research problem as such. They do not consider content analysis as an instrument in its own right but as a form of relevant approach in solving the particular research problem at hand. Content analysis of responses to open-ended interviews would consequently have to tailor itself to the basic orientation of the research interview.

The problem for the present Parent Interview was to provide cross-sectional information on typical forms of parental interaction with the EMR child. Due to the exploratory nature of the study, a variety of potential responses had to be provided for in the content analysis. Initial attempts toward scrutinizing the interview transcripts through a "word-by-word analysis" produced a multiplicity of details of information which became unwieldy for coding and for meaningful interpretation. Later attempts of content analysis in terms of general themes of parent-child interaction seemed to do no justice to the peculiar specificity with which the parents responded to the interview questions. It was decided then to use an analysis intermediary between "word-by-word" approach and "general theme" approach. The procedure of content analysis which was finally found to be most appropriate for the Parent Interview was that of interrelated components of themes on actual parent-child behavior.

The main components which were identified within the transcripts from the parents were (1) Persons mentioned; (2) Dealings with the child; (3) Situations of parent-child interaction; (4) Frequency and regularity of interaction. Additional aspects to be evaluated in the transcripts were (5) Parental comparisons with a selected non-retarded sibling. The manual of coding regulations for the Parent Interview is contained in condensed form in Appendix C. But the category system for content analysis of the Parent Interview is presented here.

Category System

A. Persons Mentioned Who Interact With the Child: The purpose of the category is to distinguish between self-actions of the child, maternal versus paternal interaction, and influences from the family as such, from siblings, relatives and members of the larger community.

1. The child is described as acting by himself.
2. Mother-child interaction is indicated.
3. Father-child interaction is indicated.
4. Description of interaction with sibling(s).
5. Description of interaction with family.
6. Description of interaction with relatives.

7. Description of interaction with community members.

B. Dealings with the Child - What Forms Does the Interaction Take On?

The important issue here is how do the parents and other significant persons in the home interact with the child? The category on dealings attempts to specify parental forms of interacting with the EMR child.

1. Minimized Exertion: The parent denies involvement with the child or states that he merely notices the child or interacts with the child in a more laissez-faire style.

2. Emotional Social Interaction with the Child: The parent expresses a closeness of personal relationship with the child in terms of greeting the child, loving, kissing, sitting close to the child, speaking to the child, or merely listening to him.

3. Mutually Cooperative Dealings: The parents describe common activities with the child, such as eating together, playing with each other, watching TV at the same time.

4. General Acts of Working with the Child: The parents indicate forms of supervision and responsibility taking in forms of helping the child, making or letting him do certain activities, getting him interested in skills, providing general activity material, taking the child to various places.

5. Demonstrating Techniques: The parent states his specialized efforts in impressing the child through explanations, gestures, pictures and other demonstration materials.

6. Techniques of Instructional Feedback with the Child: The parent mentions such forms of involvement with the child as personalized name calling, commands, questions, affirmation and negation of child actions.

7. Techniques of Spurring the Child: Specialized parental techniques are described here in the form of praising the child, suggesting improvements, challenging him, using repetition.

8. Parental Teaching of Reading: Typically in response to the interview questions on reading the parent states his particular approaches to reading activities with the child.

9. Parental Teaching of Numberwork: Typically in response to interview questions on arithmetic activities the parent states his approaches to number activities with his child.

10. Mental Health Concerns: The parental statements indicate specialized concerns for their interactions with the child in terms of giving him special attention, dealing patiently with him, avoiding or releasing tension and considering the child's level.

C. Subject Matter of Interaction with the Child - In Which Areas of Activities Do Child and Parent Interact with Each Other?

In contrast to dealings which stress specified forms of parental doing the subject matters distinguish between child situations where such interaction might take place.

1. Physical Activities: The parents describe child-related activities such as eating, sleeping, grooming, taking prescribed medication.

2. Social Emotional Activities of the Child: The statements of the parents indicate activities such as gestures of affection, greeting, talking, showing tensions in the relationship with others, acting in idiosyncratic ways.

3. Economic - Recreational - Organizational Activities: A variety of situations described by the parent falls into this category such as household chores, shopping, active and passive forms of recreation, attendance and participation in church activities and scout projects.

4. General Learning Activities Exclusive of Reading and Arithmetic: The parents describe special learning activities of the child such as asking questions, solving problems, doing homework, being occupied with general learning materials, doing exercises in writing, spelling, drawing and in speech.

5. Reading Activities of the Child: Parental descriptions mention the child's skills and efforts in reading and his occupation with reading materials.

6. Number Activities of the Child: Parental descriptions mention the child's skills and efforts in number work and his occupation with arithmetic materials.

7. Child Actions Within the Circumference of Limited Mental Abilities: Particular forms of evidenced learning difficulties are pointed out by the parents such as not paying attention, not understanding, forgetting, reacting slowly, showing disinterest, no concentrating, not cooperating with others, indicating a lack of concern about accuracy of the work.

D. Frequency and Regularity of Interaction - How Often and With What Regularity Do Parents Interact? The indice of frequency and regularity are further specifications of dealings and subject matters in the interaction of parents with their children.

1. Infrequent and Irregular: This category applies to parental remarks on singular occurences, seasonal activities, conditional remarks such as at times, perhaps, maybe, whenever I find a chance.

2. Moderate Regularity and Frequency: The parent describes situations of recurring activities such as bi-monthly family gatherings, weekly attendance at church or at scout meetings.

3. Relating to Hypothetical Problem Situations: This is not a regular indicator of frequency and regularity but is coded in response to the questions "What happens when he cannot make out a word? What do you do then? What happens when he cannot figure out a problem? How do you help him?"

4. High Frequency and Regularity: This refers to parental descriptions of activities which are pursued daily or at least twice a week.

5. No Frequency Indication is Given: No aspect of the parental remark provides any indication about the frequency and regularity of a described activity.

E. Comparisons With a Selected Non-Retarded Sibling This category is to make broad distinctions between parental interaction with a non-retarded selected sibling as compared to his interaction with the EMR child.

1. Parental Remarks Favor the Non-Retarded Sibling: Parental descriptions of the non-retarded sibling as compared to the EMR child contain complimentary

expressions such as "very good student," "doing real well in school," "is bright," "learns faster," "has better understanding," "is so much easier to get along with."

2. Parental Remarks Favor the EMR Child: Parental descriptions of the EMR child as compared to the non-retarded sibling contain complimentary expressions such as "we have been pleased with her progress," "has a very good memory," "does nice work," "reads quite well," "is better in arithmetic."

3. Parents Consider the Children on Equal Terms: Parents comment on similarities among the children such as "they are very much alike," "they both enjoy swimming," "both have problems in reading," "they have the same interests."

4. Parents Consider the Children Different From Each Other: The parents emphasize the difference between the two children such as "they are so different from each other," "you cannot compare them," "they do not seem to have anything in common."

After the category system had been defined in detail, it was applied to each phrase and sentence of the transcripts from the Parent Interviews. Table 6 shows the series of considerations which were necessary for coding a simple maternal statement such as "we go together shopping every Friday."

Table 6

Example of Coding Considerations in the Content Analysis of the Parent Interviews

Statement from Transcript	we	go together	shopping	every Friday
Meaning of Words	mother and child	mutual cooperative	economic activity	regular weekly activity
Coding Category	Persons Mentioned	Dealings with Child	Subject Matter	Regularity Frequency

Each phrase or word in the transcript which could be pertinently applied to the coding system was recorded in terms of the respective numerical code. The obtained frequencies within each category were systematically tabulated. A research assistant was trained to use the coding system and to code randomly selected sections from the Parent Interviews. Thirty-two different interview sections from the available 72 transcripts were used to establish reliability values between the coding of the research assistant and the coding of the main investigator. Two aspects of reliability were tested: First the universe of the material which was available for comparisons between the research assistant and the main investigator. The intercoder agreement for this aspect ranged from 56% to 90% with a median agreement of 73%. The main reasons for disagreements among the coders were opinionated statements with slight suggestions of factuality. Once a statement had been mutually identified by the coders, a second reliability test was applied to check on agreements within the detailed subcategories. The intercoder agreement for this aspect ranged from 76% to 100% with a median agreement at 90%.

CHAPTER V

PROCEDURE: THE PARENT TEST

Main Considerations for the Parent Test

The Parent Test, like the Parent Interview, was also designed as an exploratory instrument. But while the Parent Interview had to rely on verbal descriptions of interactional situations, the Parent Test was to provide direct observation of parental interaction with the EMR child. The specific purpose of the Parent Test was to reveal possible differences in parental ways of teaching which would be related to the child's achievement in school.

The term "teaching" has been defined in the Dictionary of Education (1959) as "the act of providing activities, materials, and guidance that facilitate learning in either formal or informal situations" (p. 552). This definition suggests a variety of possible approaches in teaching a child. The investigator's previous observations in the homes of EMR children indicated that some parents were inventive in bringing out unique emphases and techniques in teaching their child. However, it seemed very difficult to develop proper rationales for the evaluation of parental styles of teaching because the parents which were observed happened to stress different subjects of teaching or used different learning materials.

In a review of investigations, using direct observation of parent-child interaction,Bell (1964) suggested that careful consideration be given to the experimental designs for observational studies. According to Bell lack of restriction of parent or child behavior in the observational arrangement may bring out too great a variety of forms of interaction which would pose serious problems of measurement. The reader may be reminded of the great number of situations, persons, and interpersonal actions which Buehler attempted to investigate in her extensive home studies. However, if the experimental design unnecessarily restricts the actions of parent and child, for instance not permitting the parent to help the child in the given situation, potentially relevant forms of behavior may not be available for observation. Thus the proper balance of restrictions of behavior would prove to be a critical point for obtaining relevant results in an observational study.

Procedures for the Parent Test

In the present Parent Test an attempt was made to define the forms of interaction which were to take place between parents and child and yet to allow enough variation in behavior so that different styles of teaching could be observed.

Development of the Schedule for the Parent Test

Ten mothers with an EMR child served as pilot subjects in the development of the features of the Parent Test. As the sample showed a wide variation of school achievement levels and socioeconomic backgrounds the problem of structure in the observational design became very distinct. Therefore the following points received special considerations: (1) instructions to the parents; (2) subjects to be taught to the child; (3) materials to be made available for teaching; (4) time allowance for teaching; (5) physical set-up and recording of the teaching situation.

1. Instructions to the Parents

During the first session with the parent, at the time when the interviews were concluded, the investigator always asked the parent for further cooperation with her research project. She pointed out the need for systematic knowledge on how children learn at home and asked the parents if they would be willing to conduct a learning project with their child in the presence of the investigator or of the research assistant. All the parents who had consented to the Parent Interview were also willing to participate in the Parent Test. When the appointments for the tests were scheduled the investigator would again in her telephone calls explain the general objective of the mutual learning situation and would reassure the mother that all needed materials would be provided by the investigator. At the time of arrival in the home the investigator attempted to put the mother at ease, answering all the questions she had and showing her in detail the teaching materials and their particular use. All the essential instructions were also printed out for the mother and handed to her prior to the test. The researchers read the instructions aloud to the mothers and asked them to express any additional questions or concerns they might yet have. The special purpose of these detailed preparations was to eliminate later disruptions in the interaction process between mother and child.

Figure 2

Block Designs Used for Subjects With Expected

Grade Placement Below 3.9 and Above 3.9

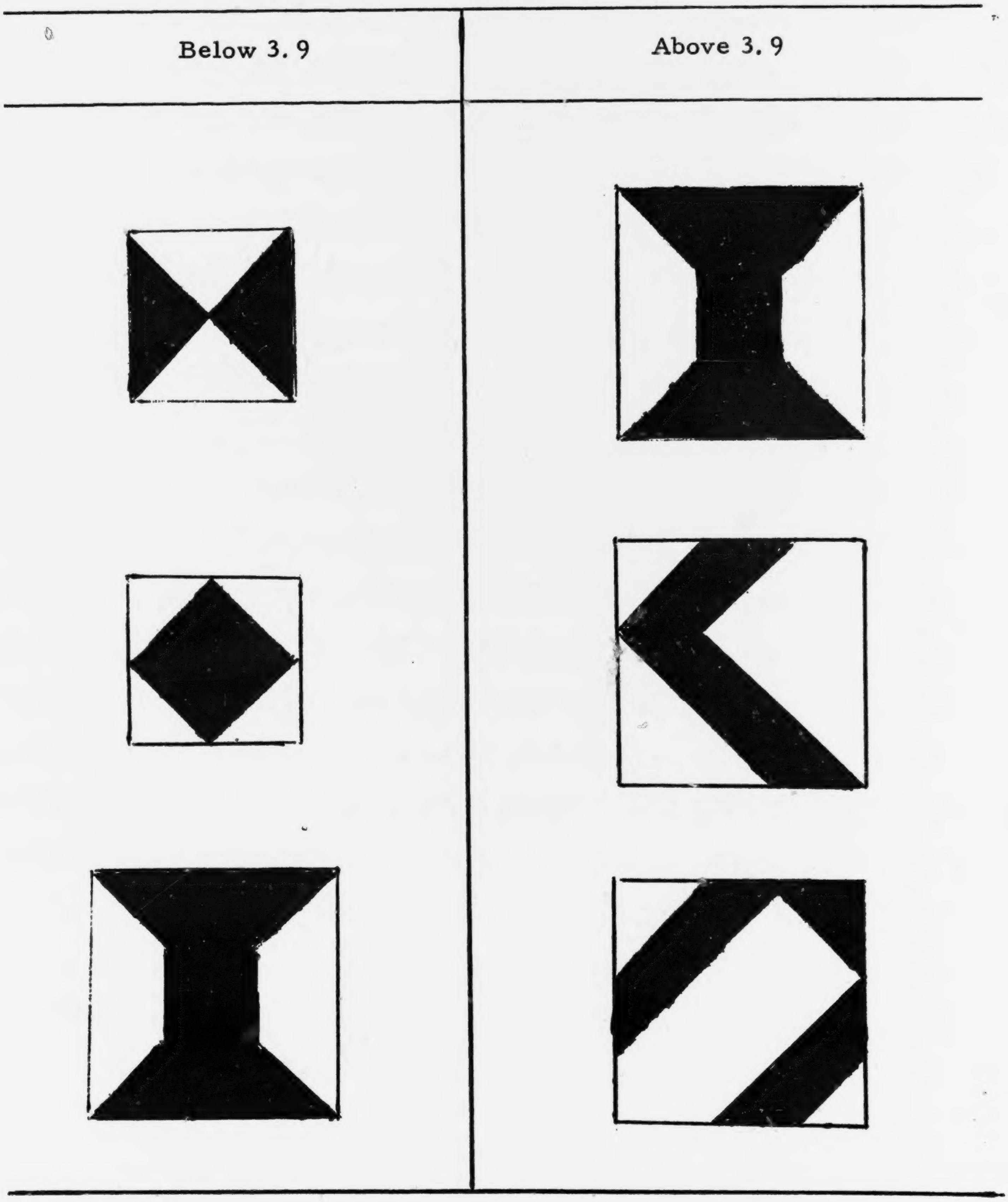

Table 7

Questions on General Information Used for Subjects with Expected Grade Placements Below 3.9 and Above 3.9.

Below 3.9	Above 3.9
1. Who discovered America?	1. Where does the sun set?
2. What are the four seasons of the year?	2. Why does oil float on water?
3. How many things make a dozen?	3. What is celebrated on the Fourth of July?
4. Where does the sun set?	4. How many pounds are there in a ton?
5. Why does oil float on water?	5. How far is it from New York to Chicago?
6. What is celebrated on the Fourth of July?	6. What is a barometer?

2. Subjects to be Taught to the Child:

Two tasks were selected as subjects to be taught during the Parent Test, namely the series on Block Design and on General Information of the Wechsler Intelligence Scale for Children (WISC). While there was a problem concerning previous encounters which the children may have had with the WISC, the two selected tasks still appeared very suitable for the purpose chosen. They provided a material for interaction which was less culturally biased then would have been the specially selected tasks in the area of reading and arithmetic. The fact that the series on Block Design and on General Information represented standardized measures with defined degrees of difficulty seemed especially to recommend their use. It lent itself to a systematic selection of items from the tasks which the child possibly would not be able to do without help from the mother. Two general differentiations among the tasks were made according to the expected achievement levels of the children involved. More of the simple tasks were assigned for children with expected grade placement below 3. 9, while more of the difficult tasks were assigned to children above grade placement 3. 9. But there was an area of overlap of items and the parents were given leeway to choose those items they felt were suitable for teaching the child. Figure 2 and Table 7 provide an overview of teaching material as compared to the expected achievement level of the child.

3. Materials to be Made Available for Teaching

a) Teaching the Block Design: A double set of design blocks and of design cards were made available to the mother, and instructions were given to her as to their use. This made it possible for the mother to do the task along with the child, or to draw comparisons between her work and the accomplishments of the child. Incorrect positioning of blocks could then be easily pointed out.

b) Teaching the Answers to Questions on General Information: A list of the selected questions together with the correct answers was placed right before the mother. Supplementary materials for special demonstrations to the child were also at the disposal of the mother to use as she saw fit. The following items had been provided: A picture on Columbus' discovery of America, a set of four illustrations depicting the four seasons of the year, a compass, a bottle with a mixture of oil and water, a folder on the basic events of Independence Day, a map showing a clearly marked route from Chicago to New York, and an accentuated picture of a barometer.

4. Time Allowance for Teaching

Suggestions were made to the mothers to take about fifteen minutes for each of the tasks. However it was left up to the mother to cut short or to extend the sessions according to her felt need in teaching the child.

5. Physical Set-up and Recording of Teaching Situation

All of the parent tests were conducted in the children's homes. Kitchen tables were most suitable for lining up the needed materials for mother and child, and for placing the taperecorder in close proximity to the interaction scene. Specially prepared forms had been worked out for the two tasks of the test to record the time of teaching and the number of non-verbal helps the mother would give to the child, especially in terms of pointing or nodding. The tape-recorded-teaching sessions were transcribed to be subjected to a detailed content analysis.

Content Analysis of the Parent Test

Budd and Thorp (1963) in their systematic discussions of different approaches in content analysis have repeatedly emphasized the selective process of elaborating meaningful categories in the analysis of communication material:

> . . . developing a system of categories is a creative process; each analysis suggests its own system of classification. Imagination . . . ought to play a decisive part both in determining the type of classification system to be used and in the design of the scheme for analysis and measurement (p. 13).

A perusal of the verbal material from the Parent Tests indicated that a very selective approach would have to be used for classification, analysis, and measurement of the material. The great variety of parental teaching behavior seemed to be too complex to lend itself to coding according to a few generalized categories. Therefore it was decided to define in detail the particular emphases in parental teaching behavior and to use a "word-by-word content analysis" as the predominant approach of investigation of the material. Consequently each and every word from the transcribed sessions of the parent test had to be scrutinized according to its meaning in the general context and its relevance to the investigation at hand. ~~The manual~~ of coding regulations for the Parent ~~Test is contained in condensed form in Appendix D, but~~ the designated categories which were applied in the analysis of the transcripts are listed here.

Category System

A. Demonstration Techniques

Demonstration Techniques were characterized by parental tendencies to make impressions on the child.

1. Non-verbal helps: This information was available from observational records of the Parent Test and indicated frequencies of parental nodding or pointing during the teaching situation.

2. Focusing: The parent made special attempts to get the attention of the child and to make a point of explanation explicit to him with the following words: "look!", "watch!", "see!", "listen!", "hear!", "pay attention!"; special designative words were also used such as: "this," "these," "those," "here," "there," "that."

3. Verbal Conceptual Helps: A great number of different forms of explanations were used by the parents to elucidate the meaning of the situation at hand. The verbal conceptual helps consisted of nouns referring to geometrical concepts in connection with the Block Design and general concepts from the Test on General Information, explanatory verbs, descriptive adjectives, adverbs, and prepositions were also considered. A critical point for inclusion into the category was the first appearance of such words. All subsequent re-occurences of the words were coded under itemized repetitions. This provided a measure of the extent of vocabulary the parent used during the test.

4. Visual Helps: Words used by the parents were direct references to concrete materials in the test situations such as the blocks and the design cards, the illustrations and objects such as "compass," "bottle with oil and water," and "picture."

B. Instructional Feedback

Instructional Feedback Techniques represented parental attempts to elicit and guide responses from the child.

5. Personalizing: Parental use of the pronouns "you," "I," "we," or "your," "my," "mine," "ours," "us," were included here and also the child's first name or affectionate designations such as "darling," "dear," "honey."

6. Giving Directions: Parental commands to the child were stated in such words as "move," "get," "put," "stop."

7. Questioning the Child: Interrogative pronouns indicated usually parental questioning of the child Who? how? why? where? what? when?, also specified sequence of words such as "don't you?", Isn't it?", "didn't he?".

8. Affirming: The parents statements conveyed a reinforcement of the child's actions or verbalizations "yes," "right," "correct," "you got it," "that's it."

9. Negating: The parents declared that the child had not fulfilled the task or not answered the question according to the parent's expectation and their expressions were: "no," "not right," "incorrect," "wrong," "mistake," "that's not it," "you didn't get it."

10. Child Expresses Himself: This was the only category provided for child responses within the interaction situation; occurence of an expression of the child as

such was coded without any differentiation as to the type of child response. This item was justified within the generalized scheme of parental teaching techniques in that it indicated that the parent allowed the child to express himself.

C. Techniques of Spurring the Child

The parental forms of teaching subsumed in this grouping entailed parental tendencies of special involvement and perseverence in their teaching efforts with the child.

11. Praising: The parent used comments which were favorable of the child "good," "fine," "swell," "excellent," "real good."

12. Suggesting Improvements: The parent reminded the child of the initial instructions, cautioned, forbade, warned, or made other remarks as to corrections or changes which would have to be made. Examples: "remember," "keep in mind," "be sure," "you better . . . ," "don't . . . ," "not white but red," "move further down," "you forgot one."

13. Challenging: The parent was asking the child to do the task without help, or she impressed on the child that he should be able to do the task on his own. Examples: "do it by yourself," "try to do it without my help," "I want you to do it on your own."

14. Repeated Presentations: This very inclusive category provided for all repetitions of previously used verbal conceptual helps, interrogative phrases, and immediate repetitions of commands.

15. Repetitions as Such: The parent asked the child to repeat a previous act. Examples: "let's do it over," "turn again," "repeat this for me."

D. Supplementary Techniques

Miscellaneous items included in this grouping were those that did not fit into any of the main groups of parental teaching techniques. Categories 16 and 17 represent specialized cases of phrase coding.

16. Parental Expressions about the Test and About Her Own Performance in Teaching the Child: While a special attempt had been made to explain in detail all the procedures of the Parent Test prior to the teaching of the child several parents still felt it necessary to interrupt their teaching to question the investigator, or they verbalized their concerns about the correctness of their procedures. A concomitant tendency was that of apologizing to the child. Example: "honey, I am sorry, I taught you all wrong."

17. Reprimanding the Child: Coded here were all negatively colored expressions as to the child's doing. Examples: "stop acting silly," "what's the matter with you," "why don't you know this," "there is no reason for you to act tired."

18. Words Considered Irrelevant: According to the distinctions on teaching techniques the irrelevant words did not seem to add to the meaning of the parental teaching except as specifiers of clauses. Examples: "about," "also," "except," "the," "and," "really," "with," "shall." This variable together with Itemized Repetitions was used as an indicator of "wordiness" on the part of the parent.

19. Teaching Time in Minutes: This variable indicated the number of minutes the mother had used in teaching the two series of tasks to her child. The information was available from the record sheets on the Parent Test.

In order to facilitate the content analysis of the transcripts from the Parent Test, a detailed coding manual was developed. It included an itemized vocabulary list with specified numerical codes for the words which the parents had frequently used in their attempts in teaching the child. A research assistant was trained to code the transcripts according to the specifications of the coding manual. For reliability tests 18 sections of 100 words each were randomly selected from the available 36 transcripts of the Parent Test and were then coded by the research assistant. The coding agreements between the research assistant and the main investigator ranged from 65% to 100% with a median intercoder reliability at 93%.

Statistical Procedures

The differences in sample characteristics were determined by means of t - tests, analyses of variance, and Fisher's Exact Probability Test (Siegel 1956 pp. 99, 256).

The basic procedures for evaluation of statistical significance of the obtained data were correlations (Pearson product moment coefficients of correlation, also partial correlations of first and second order). The decisive variables for tests of significance of the obtained correlations were "achievement scores" and "socioeconomic classification." Additional sources of information were the available correlation coefficients for sex and mental age of the child.

For all the statistical procedures the significance level .05 was used for rejection or acceptance of null hypotheses. As no specific direction was predicted for any of the investigations only two tailed tests of significance were applied.

CHAPTER VI

RESULTS

The aim of the study was to identify salient relationships between parental teaching and school achievement of the child. In order to specify such relationships the characteristics of the sample had to be ascertained and the relative strength of the selected variables on parental teaching had to be defined.

The results of the various investigations are described in this chapter under the following main sections: (1) characteristics of the sample; (2) findings from the Parent Interview; (3) findings from the Parent Test.

Characteristics of the Sample

Figure 3 illustrates the design for comparisons between the subjects. The subsections in the design indicate the disparity of the achievement groups and their socioeconomic dichotomy.

For the present discussion on characteristics of the sample special attention was given to describe the achievement differentiation among the subjects and the comparability of the subject groups, with regard to chronological ages, intelligence quotients, mental ages, and expected grade placement, and the distribution of boys and girls among the subject groups.

Achievement Differentiation

The subjects had been purposely selected from the two socioeconomically different populations to represent extremes in school

Figure 3

Basic Distinctions Between the Research Groups

	ACHIEVEMENT		
SOCIO ECONOMIC LEVEL	High achievers from the higher socioeconomic group N = 9	The disregarded average group	Low achievers from the higher socioeconomic group N = 9
	High achievers from the lower socioeconomic group N = 9		Low achievers from the lower socioeconomic group N = 9

achievement. The actual discrepancies between expected grade placement as defined by Horn (1941) and obtained grade placement from the Metropolitan Achievement Test, ranged from +.97 to -2.35 grades. Since the grade-placement scores contained different directional signs and were composed of different subtests they were transformed into scaled achievement discrepancy scores. Low discrepancies between expected achievement and obtained achievement indicated a high achievement level; conversely, large discrepancy scores indicated a low achievement level.

Inspection of Table 8 shows that there was comparatively less discrepancy indicated for the subjects from the lower socioeconomic population. This difference proved to be significant for the high achievers ($t = 2.86$, 16 d.f., $p < .05$). It was concluded therefore that the high achievers from the two socioeconomic groups differed so greatly in their discrepancy scores that they could not be assumed to be part of one population with common characteristics in achievement discrepancy.

However, the _t_ values for differences in discrepancy scores of the two low achieving groups were not significant ($t = 1.54$, 16 d.f., $p < .20$) indicating that on this characteristic the low achievers could be considered equivalent regardless of socioeconomic level.

Group Differences in CA, MA, and Expected Grade Placement

The four different research groups were compared with regard to chronological ages, intelligence quotients, mental ages and expected grade placement. Table 9 gives the results of analyses of variance, which indicate that the subjects as they were grouped according to achievement differed significantly on all the characteristics but CA.

Table 8

Means, Standard Deviations, Ranges of Achievement Discrepancy Scores, t-Tests and Probabilities for the Four Research Groups

Achievement Level	Socio-Economic Level	N	Achievement Discrepancy Scores			t	p
			$\overline{X}$	S. D.	Range		
High	higher	9	59.66	8.88	044-077	2.86	.05
	lower	9	39.11	18.33	001-067		
Low	higher	9	119.33	18.11	107-147	1.53	.20
	lower	9	105.88	18.30	82-133		

Table 9

Means, Standard Deviations and Analyses of Variance for CA, IQ, MA and XGP for High and Low Achievers from the Higher and Lower Socioeconomic Group

		HIGH ACHIEVERS		LOW ACHIEVERS		F
		High So. Ec.	Low So. Ec.	High So. Ec.	Low So. Ec.	
CA	$\bar{X}$	131.77	123.88	131.33	131.88	2.88 Achiev. .98 So. Ec. 1.22 Interaction
	SD	17.00	11.15	14.82	13.14	
IQ	$\bar{X}$	63.33	66.88	70.66	66.88	4.69* Achiev. .01 So. Ec. 4.69* Interaction
	SD	7.12	4.96	4.06	5.06	
MA	$\bar{X}$	84.55	82.11	92.55	88.77	6.28* Achiev. 1.67 So. Ec. .06 Interaction
	SD	6.08	6.17	7.74	11.60	
XGP	$\bar{X}$	3.00	2.74	3.54	3.35	4.31* Achiev. 1.22 So. Ec .12 Interaction
	SD	.68	.50	.77	.93	

* significant at .05 level of confidence

** significant at .01 level of confidence

The respective F values for IQ, MA, and XGP were 4.69, 6.28 and 4.31 at 1/35 d.f. which were all significant at $p < .05$. A special mark of the high achievers was their generally lower IQ, MA and XGP. Since the differences were so distinct that they could not be attributed to chance variations it was concluded that the high achievers represented a group which was significantly different from the low achievers with regard to IQ, MA, and XGP.

It must be remembered, however, that the basis for selection of high and low achievers had been two different socioeconomic populations. Table 9 shows that the listed F values for socioeconomic grouping of the subjects were insignificant with regard to CA, IQ, MA and XGP (The respective F values were .98, .008, 1.67 and 1.22 at 1/35 d.f.). The null hypothesis was therefore accepted, and it was concluded that the subjects according to their socioeconomic grouping showed common population characteristics with regard to CA, IQ, MA, and XGP.

When interaction between achievement and socioeconomic grouping was considered, only the aspect of IQ yielded a significant F value ($F = 4.69$, 1/35 d.f., $p < .05$). Since only a minimal variance in socioeconomic grouping had been observed for IQ (mean square .250) and a high variance for achievement grouping of IQ (mean square 140.029) it was quite obvious that the significant F value for interaction was mostly a function of the distinct IQ differences of the two achievement groups. It was inferred then that the four different research groups showed significantly different IQ characteristics when the combined effects of achievement and socioeconomic grouping were considered.

Distribution of Boys and Girls Among the Subject Groups

The initial plan had been to confine the investigation to male subjects. However, a study of the available school records indicated that only a comparatively small number of boys were able to meet the selection criteria. Therefore girls were also included in the investigation. But since the number of qualifying subjects was still small, even after the girls had been included, and since the achievement characteristics were differently distributed, it was not found possible to select sufficiently large subgroups with an equal balance of boys and girls. Figure 4 shows the imbalance in the distribution of sexes among the four research groups.

Figure 4

Distribution of Boys and Girls
Among the Four Research Groups

		ACHIEVEMENT	
		high	low
SOCIO ECONOMIC LEVEL	high	3 boys 6 girls	5 boys 4 girls
	low	9 boys 0 girls	7 boys 2 girls

Ratio of boys and girls for combined research groups 24:12 (2:1)

When the twelve girls of the sample were viewed separately, a concentration of ten girls was found within the higher socioeconomic population, but only two girls within the lower socioeconomic population. When the distribution of girls within the four research groups was tested with Fisher's Exact Probability Test the observed differences between the groups were found significant at the .01 level. The null hypothesis was therefore rejected and it was decided that the differences in the distribution of girls were due to differential influences upon the population of girls in the sample.

Summary of Sample Characteristics

A generalized observation of the sample characteristics were indicated signs of imbalance of the following groups:

a) The high achievers of the higher socioeconomic group showed greater achievement discrepancies than the high achievers of the lower socioeconomic group.

b) The high achievers, regardless of socioeconomic level, had generally lower IQ, MA, and XGP, as contrasted with all the low achievers from both socioeconomic groups.

c) Most of the girls of the research sample were found in the higher socioeconomic group.

Findings from the Parent Interview

The present study on relationships between parental teaching and school achievement of the EMR child was based on subject groups which represented extremes of achievement. Therefore the assumption of a normally distributed population could not be made.

Indications of imbalance in sample characteristics, such as significant differences among the achievement discrepancy scores, further necessitated the use of a statistical procedure which did not require balanced samples. Pearson product moment coefficients of correlation were therefore used to show the respective relatedness between specified variables on parental teaching and selected characteristics of the child.

A Pearson $\underline{r}$ of at least .33 was considered a sufficient reason for rejection of the null hypotheses of zero corelation between respective variables ($\underline{r}$ = .33, 34 d.f., $p < .05$; $\underline{r}$ = 42, 34 d.f., $p < .01$). The main aspects used for investigation of Parent Interview items were the achievement scores of the subjects and the socioeconomic classification of the families. The intercorrelation between these two aspects was not significant ($\underline{r}$ = 22, $p < .10$), indicating the relative independence of achievement scores and socioeconomic level within the subject groups. However, the intercorrelations between socioeconomic level and sex of child proved significant ($\underline{r}$ =. -47, $p < .01$) giving further evidence that the research groups contained a disproportionately great number of girls within the higher socioeconomic group. The correlation of sex of child with achievement was insignificant ($\underline{r}$ = .14, $p < .10$). It may be noted here that all the listed coefficients of correlation with a negative directional sign refer to girls while positive correlation coefficients refer to boys.

Following are the results of correlations between Parent Interview items, achievement score, socioeconomic level, and sex of the child. The underlined subheadings represent the main components of parent-child interaction as they had been elaborated through the content analysis of the Parent Interview, and of the Parent Test, namely: Persons Mentioned, Dealings with the Child, Subject Matter of Child-Parent Related Activities, Frequency - Regularity, Comparisons with a Non-Retarded Sibling, and Maternal Techniques used with the EMR child in an Actual Teaching Situation.

Persons Mentioned

It was assumed that the frequency of parental references to a particular person with whom the EMR child interacts would indicate relative strengths in personal relationships which, in turn, might be characteristic of the child's achievement in school, or of the socioeconomic background of the family.

Table 10 shows that no significant correlations between "Persons Mentioned" and the achievement scores of the child subjects could be found. Moreover, no significant socioeconomic differentiation was indicated for the fathers' remarks on persons interacting with the child. For the mothers, however, the interview item "child with sibling" was mentioned with significantly greater frequency among the higher socioeconomic group than among the lower socioeconomic group. ($\underline{r} = .39$, $p < .05$).

Correlations of three additional items of "Persons Mentioned" were significant with regard to sex of child. The fathers of EMR girls tended to refer more frequently to interaction of the child in the family than did fathers of EMR boys ($\underline{r} = -.40$, $p < .05$), and the mothers of EMR girls made significantly more references to interaction of the child with her mother ($\underline{r} = -.35$, $p < .05$), and with relatives ($\underline{r} = -.45$, $p < .01$), than did mothers of EMR boys.

Table 10

Correlations Between Persons Mentioned, Achievement Score, Socioeconomic Classification and Sex of the Child as Mentioned by Fathers and by Mothers

Persons Mentioned	FATHER			MOTHER		
	Ach. Score	So. Ec. Class	Sex # Child	Ach. Score	So. Ec. Class	Sex # Child
Child by Himself	.05	-.06	-.03	-.01	.27	-.31
Child with Mother	-.21	-.15	.27	.07	.17	-.35*
Child with Father	.15	.05	-.19	.09	.22	-.26
Child with Sibling	-.06	-.15	-.14	.01	.39*	-.19
Child with Family	-.06	-.20	-.40*	-.14	.11	-.16
Child with Relatives	.03	.25	.24	-.18	.31	-.45**
Child with Community Members	.12	.10	-.08	.01	.12	-.03

* = significant at .05 level of confidence
** = significant at .01 level of confidence

# positive correlations on sex refer to boys
negative correlations on sex refer to girls

Dealings with the Child

It was assumed that parents develop particular styles of dealing with their EMR child and that such styles would be manifested during the Parent Interview when the parents were asked to describe how they helped the child at home. The particular emphases of the parents in speaking about their dealings with the child could then be tested with regard to indicated relationships to the child's achievement in school.

Table 11 gives a listing of the intercorrelations of ten forms of parental dealings with the child, and the achievement scores, socioeconomic classification, the sex of the child, and the sex of the responding parents.

A prominent correlation was revealed for the interview item "social-emotional dealings with the child." Social-emotional dealings had been defined as "greeting the child, loving him, sitting close to him, speaking or merely listening to him." This item, as mentioned by the fathers, was significantly correlated with the achievement scores of the children ($\underline{r} = .35$, $p < .05$); an even higher correlation coefficient was obtained when the achievement groups as such were considered in their relation to social-emotional dealings ($\underline{r} = .45$, $p < .01$). The significant correlation coefficient for this item suggests a tendency on part of the fathers of high achieving children, to remark more frequently on situations of being emotionally close to the child.

For the mothers social-emotional dealings proved insignificant to achievement but was significantly related to socioeconomic level ($\underline{r} = .47$, $p < .01$), pointing out that mothers from the higher socioeconomic group would report more often on their social-emotional dealings with

Table 11

Correlations Between Dealings with the Child and Achievement Score, Socioeconomic Classification and Sex of Child as Mentioned by Fathers and by Mothers

Dealings With the Child	FATHER Ach. Score	FATHER So. Ec. Class	FATHER Sex # Child	MOTHER Ach. Score	MOTHER So. Ec. Class	MOTHER Sex # Child
Minimal Exertion	.10	.25	.15	-.06	.07	-.31
Social Emotional Dealings	.35* a)	-.14	.05	-.23	.47**	-.26
Mutual Cooperative	-.05	-.07	-.07	-.01	.28	-.27
Working with Child	.02	.15	-.39*	.09	.26	-.14
General Demonstrations	.04	.15	-.18	.13	-.07	-.09
General Instructions	.10	.11	-.19	-.00	-.03	-.07
General Spurring	.10	.26	-.25	.09	.13	-.04
Teaching Reading	.07	.36*	-.13	-.06	.26	-.15
Teaching Arithmetic	.00	-.01	-.28	.00	-.06	-.05
Mental Health Concerns	-.01	.32	-.17	.22	.28	-.22

a) When social emotional dealings were considered for the achievement groups as such, and not for achievement scores, a correlation coefficient of r = .44 was obtained, which is significant at $p < .01$.

* significant at .05 level of confidence ** significant at .01 level of confidence

# positive correlations with sex refer to boys; negative correlations with sex refer to girls the child than would the lower class mothers.

The fathers of the higher socioeconomic group distinguished themselves from lower socioeconomic group fathers by describing with greater frequency their reading activities with the EMR child ($\underline{r} = .36$, $p < .05$).

With regard to sex differences in parental comments about their dealings with the child, fathers of EMR girls mentioned more often acts of working with the child (such as helping the child, getting him interested in skills, providing activity materials for him) than did fathers of EMR boys ($\underline{r} = -.39$, $p < .05$). No significant differences were revealed in parental dealings as related to the sex of the child; but a consistent trend was indicated for mothers of EMR girls to make more comments on their dealings with the child than did the mothers of EMR boys.

Subject Matter of Child-Parent Related Activities

One recurring question of the Parent Interview had been "What do you do with your child?" The purpose of this question had been to obtain descriptions of parent-preferred activities and child-related interests which might be representative of the child's achievement in school, or of the socioeconomic background of the family.

Inspection of Table 12 shows that no significant correlation with achievement was obtained for any of the subject matters. With regard to socioeconomic differentiation only statements by mothers showed relevant correlations. Three of these correlations on subject matters, as mentioned by mothers, were noteworthy in that they showed similar trends for the correlation with socioeconomic level and the correlations with sex of the child. They were:

Table 12

Correlations Between Subject Matters and Achievement Score, Socioeconomic Classification and Sex of the Child as Mentioned by Fathers and by Mothers

Subject Matter	FATHER			MOTHER		
	Ach. Score	So. Ec. Class	Sex # Child	Ach. Score	So. Ec. Class	Sex # Child
Physical Activities	.06	.00	-.04	-.02	-.18	.09
Social Emotional Activities of Child	-.01	.00	-.36*	.26	.32	-.39*
Economic, Recreational and Organizational Activities	.16	-.12	.18	.07	.19	-.10
General Learning Activ.	-.01	.11	-.40*	.13	.17	-.40*
Reading Activities	.06	.18	-.13	.02	.35*	-.37*
Arithmetic Activities	.00	.00	-.12	.09	.04	-.17
Child Actions Indicative of Mental Limitations	-.02	.19	-.43**	.01	.37*	-.30

* significant at .05 level of confidence
** significant at .01 level of confidence

positive correlations with sex refer to boys; negative correlations with sex refer to girls

1. Social emotional expressions of the child
   ($r = .32$ $p < .10$
   $r = .39$ $p < .05$)

2. Reading activities of the child
   ($r - .35$, $r = -.37$, both at $p < .05$)

3. Child actions indicative of mental limitations
   ($r = .37$, $p < .05$
   $r = .30$, $p < .10$)

While the correlations on socioeconomic level suggest that more remarks on these three subject matters were made by mothers of the higher socioeconomic class, the correlations on sex of the child suggest that mothers of EMR girls mentioned these subject matters with greater frequency. It was found that, when the effects of sex of child were partialed out, only insignificant correlations remained between socioeconomic level and the three subject matters; conversely, when socioeconomic level was held constant only insignificant correlations between sex of child and the three areas of subject matter remained. The depleting effects of partialing out from the significant correlations either sex of child or socioeconomic level was in this case determined by the strong intercorrelation between socioeconomic level and sex of child ($r = -.47$, $p < .01$). This effect may be explained specifically in terms of the disproportionately large number of girls from the higher socioeconomic class. It was concluded therefore that the significant correlations which were shown for "social emotional expressions," "reading activities of the child," and "child actions indicative of mental limitations," with sex of child and socioeconomic level were mostly accounted for by the frequent statements of mothers of EMR girls from the higher socioeconomic group.

Other significant correlations which were obtained for sex of child and areas of subject matter showed no determining relationship to socioeconomic level. They were: (1) the fathers' remarks on social emotional expressions of the child (r = -.36, $p < .05$); (2) the remarks of both parents on general learning activities of the child, such as asking questions, or doing homework (r = -.40, $p < .05$); and (3) the fathers' remarks on child actions indicative of mental limitations (r = -.43, $p < .01$). For both parents a consistent trend was noticeable in that more statements on subject matters were made by parents of EMR girls than by parents of EMR boys.

Frequency-Regularity

It had been speculated that the regularity and frequency of parental interaction with the child might also be closely related to patterns of school achievement of the child or to the socioeconomic background of the family. But no significant correlations between specified degrees of frequency - regularity and achievement or with socioeconomic background could be found (See Table 13).

With regard to sex of child a significant tendency was indicated for mothers of girls to describe more frequently teaching techniques they would use in a hypothetical learning situation, such as when the child would be unable to make out a word in his reading test (r =-.35, $p < .05$); but this item proved insignificant when the effect of socioeconomic level on the correlation was partialed out (the remaining correlation was (r = -.24, 33 d.f., $p < .10$). For the fathers however, a highly significant correlation between sex of child and "high frequency-regularity" of interaction with the child (r = -.45, $p < .01$) still remained significant even when socioeconomic level was held constant (r = -.41, 33 d.f., $p < .05$). This result indicates that fathers of EMR girls, regardless of socioeconomic

Table 13

Correlations Between Frequency - Regularity and Achievement Score, Socioeconomic Classification and Sex of the Child as Mentioned by Fathers and by Mothers

Frequency/Regularity	FATHER			MOTHER		
	Ach. Score	So. Ec. Class	Sex # Child	Ach. Score	So. Ec. Class	Sex # Child
Infrequent/irregular	.07	.02	-.05	.01	.15	-.21
Moderate Regularity	-.07	.09	.05	-.12	.20	-.02
Hypothetical Situations	-.05	.00	-.24	.20	.27	-.33*
High Regularity/frequency	.02	.20	-.45**	.27	.00	-.09
No Frequency Indications Given	.09	-.16	.03	.30	.26	-.32

* significant at .05 level of confidence
** significant at .01 level of confidence

# positive correlations with sex refer to boys; negative correlations with sex refer to girls.

level, made more remarks on interaction patterns of high frequency - regularity, than did the fathers of EMR boys.

Comparisons

The parents had been asked to draw comparisons between their activities with a non-retarded sibling and the EMR child. It was assumed that differential parental involvement with either one or both of the children might also manifest itself in differential forms of school achievement of the EMR child or might be typical of the socioeconomic background of the family.

No significant correlation was found between any of the comparisons and the achievement of the child (See Table 14).

When the comparisons were tested for socioeconomic differentiation it appeared that the higher class mothers had a different orientation in comparing the two children than did the higher class fathers. For the mothers a significant correlation was obtained for the item "both children are considered on equal terms" and socioeconomic level ($\underline{r} = .41$, $p < .05$), This correlation still remained significant after the effects of sex differences of the children had been partialed out ($\underline{r} = .34$, 33 d.f., $p < .05$). These results indicate that mothers of the higher socioeconomic group were more likely to stress commonalities of behavioral characteristics of the two children than did mothers of the lower socioeconomic group.

For the fathers a significant correlation between socioeconomic level and the item "the two children are considered to be different" was observed ($\underline{r} = .36$, $p < .05$), but the significance of this correlation was depleted when sex of the child was held constant

Table 14

Correlations Between Aspects of Parental Comparisons and Achievement Score, Socioeconomic Classification and Sex of the Child as Mentioned by Fathers and by Mothers

	FATHER			MOTHER		
Comparisons	Ach. Score	So. Ec. Class	Sex # Child	Ach. Score	So. Ec. Class	Sex # Child
Favoring the non-retarded child	-.01	.18	-.11	-.02	-.03	-.11
Favoring the EMR child	.13	.26[a]	.03	.07	.08	.12
Both children considered on equal terms	.00	.23	.12	.00	.41*	-.29
The children are considered to be different	.04	.36*	-.34*	.19	.23	-.10

a) When the fathers' remarks on "favoring the EMR child" were considered according to socioeconomic score of the family, instead of socioeconomic classification, a highly significant coefficient of correlation was obtained ($\underline{r} = .44$, $p < .01$).

* significant at .05 level of confidence

# positive correlations with sex refer to boys and negative correlations with sex refer to girls

(r = .27, 33 d.f., $p < .10$). It was concluded therefore that the significant correlation between socioeconomic level and the item "children considered to be different" was mostly an attribute of the more frequent remarks on child differences by the higher class fathers of EMR girls.

As additional socioeconomic distinction among the comparisons became evident when the socioeconomic score of the fathers was correlated with the aspect "father making favorable remarks about his EMR child" (r = .44, p .01). This highly significant correlation coefficient suggests that the higher the socioeconomic level of the father was the more he was inclined to express favorable remarks in behalf of his EMR child. This relationship, however, did not become relevant when the fathers were simply classified as high achievers and as low achievers.

Findings from the Parent Test

Maternal Techniques Used with the EMR Child in an Actual Teaching Situation

During the initial home visits with families from the private school sample the parents of high achieving children had excelled through their many efforts of teaching the child. They had taken considerable pains in demonstrating to the child the tasks to be learned; they had made numerous attempts to get the child actively involved in the task, and they had helped the child to continue his efforts in order to improve his performance on the task. The parents of low achieving children, on the other hand, had appeared rather indifferent about the task, putting forth little effort to demonstrate to the child, or to get him involved, or to spur him toward higher achievements.

The findings of the present study were not supportive of the results of the previous investigation, in fact, they were contrary to it. Table 15 shows a list of consistently negative correlations between parental teaching techniques and achievement score of the child. Nine out of the nineteen specified variables of parental teaching yielded significant negative correlations with the achievement scores of the EMR subjects; they were:

	r	
focusing	-.38	$p < .05$
verbal concepts	-.37	
visualizing	-.35	
questioning	-.34	
repeated presentations	-.37	
parental concern about the test	-.35	
irrelevant words	-.40	

	r	
personalizing	-.43	$p < .01$
praising	-.43	

The results indicate an inverse relationship between parental acts of teaching and the previously established achievement score of the child, i.e., the higher the achievement score of the child, the less frequent the observed tendency of the mothers to use the specified teaching techniques; conversely, the lower the achievement score of the child the more numerously was the mother observed to project herself into acts of teaching her child. These differences were not brought to light when the children were merely considered on the basis of their grouping as high and low achievers. Table 16 shows that correlations between parental teaching and achievement classification were found to be insignificant except for the variable "personalizing" ($r = -.37$, $p < .05$).

When the results were considered with regard to possible socio-economic differentiation only the variable "repeated presentations"

Table 15

Correlations Between Nineteen Techniques of Maternal Teaching and Achievement Score, Achievement Classification, Socioeconomic Rating and Socioeconomic Classification

Maternal Teaching Techniques	Achiev. Score	Achiev. Class	So. Ec. Rating	So. Ec. Class
nonverbal teaching	-.21	-.05	.09	.27
focusing	-.38*	-.32	.12	.29
verbal conceptual helps	-.37*	-.23	.04	.29
visualizing	-.35*	-.27	.18	.23
personalizing	-.43**	-.34*	.07	.25
directing	-.25	-.21	.03	.11
questioning	-.34*	-.27	.12	.32
affirming	-.28	-.24	.16	.16
negating	-.10	-.10	-.03	-.06
child expressions	-.21	-.10	.26	.29
praising	-.43**	-.23	.25	.26
suggesting improvements	-.25	-.27	.03	.14
challenging	-.18	-.22	.06	.04
repeated presentations	-.37*	-.27	.15	.33*
child is asked to repeat	-.06	-.05	.12	.06
parental concern about test and her performance	-.35*	-.13	.13	.20
reprimanding	-.15	-.23	.00	.10
irrelevant words	-.40*	-.26	.14	.32
minutes of teaching time	-.27	-.15	-.06	.06

* significant at .05 level of confidence; ** significant at .01 level

yielded a significant correlation ($\underline{r} = .33$, $p < .05$), indicating higher frequencies for this technique by mothers of the higher socioeconomic group. This item was also closely paired with a significant negative correlation with achievement score of the child. When the effects of differences in achievement scores were partialed out only insignificant correlation with socioeconomic classification was obtained ($\underline{r} = 28$, 33 d.f., $p < .10$). It was concluded then that the socioeconomic difference in the technique "repeated presentations" was mostly due to the tendency of mothers of low achieving children from the higher socioeconomic group to make more frequent use of repetitions in words and questions when teaching the child.

In an attempt to explain the unexpected trend of consistently negative correlations between parental teaching and achievement score of the child, the aspects of sex and mental age of the child were given careful consideration.

Sex of the child had already proven itself as an important factor in the analyses of the Parent Interview; parents of EMR girls generally tended to make more remarks about their child than did parents of EMR boys. This finding was now strongly supported by sixteen significant correlations with sex found among the established nineteen variables on parental teaching.

In order to test the interrelationships between parental teaching, achievement, and sex of child, all of the obtained significant correlations with achievement were subjected to processes of partialing out the effects of different sexes among the subjects (see Table 16). However, most of the correlations with achievement still retained their statistical significance and the other items, "visualizing," "questioning,"

Table 16

Correlations and Partial Correlations Between Selected Techniques of Parental Teaching Achievement Score, Sex and Mental Age of the Child Subjects

Selected Techniques of Parental Teaching	CORRELATIONS			PARTIAL CORRELATIONS			
	Ach. Score	Sex Child	MA/ Child	Ach. Score Sex const.	Ach. Score MA const.	Sex Child MA const.	Ach. Score Sex/MA const.
FOCUSING	-.38*	-.53**	.17	-.36*	-.35*	.09	-.35*
Verbal helps	-.37*	-.41*	.28	-.37*	-.27	.21	-.34*
Visualizing	-.35*	-.44	.25	-.32	-.25	.17	-.31
Personalizing	-.43**	-.49**	.26	-.43**	-.35*	.17	-.40*
Questioning	-.34*	-.48**	.12	-.32	-.34*	.02	-.34*
Praising	-.43**	-.40*	.48**	-.41*	-.17	.44**	-.42*
Repeated presentat.	-.37*	-.49**	.19	-.36*	-.34*	.09	-.37*
Parental concerns about her teaching	-.35*	-.35*	.45**	-.32	-.08	.40*	-.30
Use of irrelevant words	-.40*	-.50**	.27	-.38*	-.27	.21	-.35*

Significance level for zero order correlations $r=.330$, at 34 d.f. $p < .05$, $r=.425$, at d.f., $p < .01$
for first order partial correlations $r=.335$, at 33 d.f. $p < .05$, $r-.430$, $p < .01$
for second order partial correlations $r=.340$, at 32 d.f. $p < .05$, $r=.435$, $p < .01$

and "parental concern about the test," fell only very slightly below the required significance level. It was therefore generalized that the obtained significant correlations between parental teaching and achievement, and parental teaching and sex of the child, were independent and not related to each other.

Mental age of the child also appeared to have a determining influence on parental teaching as related to achievement of the child, especially due to a highly significant correlation between MA and achievement ($\underline{r} = . -65$, $p < .001$). Table 17 indicates that when the effects of differing MA were eliminated from the correlation five out of the nine selected teaching variables were no longer significant. This dependence on MA was demonstrated for the items "verbal conceptual helps," "visualizing," "praising," "parental concerns," and "irrelevant words." The finding revealed that the obtained significant correlations on these items were mostly accounted for by mothers of high MA children with low achievement scores who had used these teaching techniques with great frequency.

When both the sex of the child as well as his MA were held constant through second order partial correlations, seven out of the nine selected correlations between parental teaching and achievement still remained significant. This result was interpreted as evidence of independence in relationships of the correlations between parental teaching and achievement, parental teaching and sex of child, and parental teaching and MA of child.

The interdependence among the variables of teaching techniques is shown in the matrix of intercorrelations on Table 17. The fact that the majority of the variables were intercorrelated at a significance

Table 17

Intercorrelations Matrix of Parental Teaching Techniques

VARIABLE	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. nonverbal	49	51	32	55	46	62	53	39	43	23	56	36	58	34	33	40	60	62
2. focusing		74	74	83	87	86	73	48	51	30	81	37	91	65	33	78	85	54
3. verbal conceptual helps			70	88	67	83	73	41	60	49	66	44	86	55	54	47	91	56
4. visualizing				77	66	73	53	39	32	39	69	45	74	51	27	72	74	49
5. personalizing					78	89	66	43	50	42	76	51	94	67	59	67	96	64
6. directing						76	63	49	39	19	82	42	85	72	27	83	78	59
7. questioning							76	47	00	37	78	43	92	04	40	72	91	54
8. affirming								41	69	48	73	45	76	51	30	47	76	27
9. negating									55	01	59	38	49	31	12	39	48	41
10. child expressions										29	54	44	60	37	35	18	62	36
11. praising											22	18	34	42	55	04	43	25
12. suggesting improvements												58	82	68	20	78	75	61
13. challenging													48	41	11	31	51	55
14. repeated presentations														67	51	73	97	58
15. child is asked to repeat															39	66	63	60
16. parental concerns about test																06	58	36
17. reprimanding																	62	46
18. words considered irrelevant																		60
19. minutes of teaching time																		

Note: Decimal points are omitted. Levels of significance r = .33, $p < .05$; r = .42, $p < .01$; r = .52, $p < .001$

level of $p < .001$ suggests common elements among the variables which accounted for the very significantly high intercorrelation.

Especially high correlation coefficients were obtained for intercorrelations of items with high word frequency for the following variables:

2) focusing (this, that, those, here, see, listen, etc.)
5) personalizing (you, your, I, me, my, we, us, our)
7) questioning (who, what, which, how, where isn't it)
14) repeated presentations (mother repeats words and questions)
18) irrelevant words (and, the, with, as, such, so, now)

Relative independence was shown in the intercorrelation with variables representative of short comments or explanatory phrases:

9) negating (no, that's wrong, you made a mistake)
10) child expressions (each child expression was counted as single condensed remark)
11) praising (good, fine, very well)
12) parental concern (mother wonders about her teaching procedure)

However it was not found possible to delineate the patterns of intercorrelations in teaching techniques in terms of significantly distinguished patterns of teaching techniques.

Summary of Findings from the Parent Interview and the Parent Test

Three generalized trends of results were revealed through the investigation: (a) There was a lack of indicated relationships between Parent Interview variables and the achievement of the child, except for the item "social-emotional dealings with the child." (b) Consistently negative correlations were revealed for the designated parental teaching techniques and the achievement of the child. (c) Greater frequencies of interview remarks and maternal teaching techniques were observed for parents of EMR girls.

CHAPTER VII

DISCUSSION OF RESULTS

The study represented a venture into new areas of investigation. Its scope was extensive, covering not only characteristics of the EMR child but also parental descriptions of their activities with the child, and on actual maternal attempts of teaching the child. The findings of the study therefore require cautious interpretation. In order to see the results in their proper light it will be necessary to recapitulate some of the basic steps of the research procedure.

The emphasis of the present discussion will be on the following critical points of the investigation:

1. Achievement grouping of the subjects
2. Relevance of the Parent Interview as an index of factors related to the school achievement of the child
3. Mother-Father differences in interview response
4. Consistently high frequency of teaching approaches on part of mothers of low achieving children
5. Preponderance of responses from parents of EMR girls

Achievement Grouping of the Subjects

The investigations on sample characteristics had shown significant differences among the achievement groups. The generalized results indicated lower IQ, MA, and XGP for the high achievers. The question may be asked now whether the obtained differences represented essential traits of the achievement groups, or whether they might have been produced to some extent by inadequate procedures in the selection of the high achievers and of the low achievers.

It may be recalled that the distinctions between high and low achievers had been based on transformations of chronological age and mental age into expected achievement (XA), according to Horn, and also on results of the Primary Battery of the Metropolitan Achievement Test.

The transformation formula $\underline{XA = .33\ CA + .67\ MA,}$ as suggested by Horn in 1941, had been applied to all the subjects in this study. Torgerson and Adams (1954, p. 84) reported, however, that Horn had later revised her formula to take into account particular developmental differences among school children of different ages. For the very young child Horn's statistical investigations showed that CA and MA were equally important in predicting achievement. However, for the older subjects Horn found MA increasingly more effective in predicting achievement. Table 18 indicates the relationship of ages and proportionate weights which Horn assigned to CA and MA for prediction of school achievement of the subjects.

Table 18

CA and MA Equivalents for Prediction of Expected Achievement for School Children of Different Ages

Chronological Age Range	PREDICTION CA		RATIO MA
6-0 to 8- 5	.50	+	.50
8-6 to 9-11	.40	+	.60
10-0 to 11-11	.33	+	.67
12-0 and above	.25	+	.75

Adapted from Torgerson and Adams (1954, p. 84 and 85)

In order to investigate the extent of differences in the scores obtained through the initial Horn formula versus the scores obtained through application of the revised formulas a sample of 17 subjects was used. It was noted that for subjects with CA 9-0 to 10-11 the revised formula yielded comparatively higher XA, and for subjects with CA 12-0 to 12-11 comparatively lower XA were shown. The changed XA scores consequently resulted in a change of scores for expected grade placement (XGP) and for achievement discrepancies. While the differences were only slight and not statistically significant they neverthe less had an effect of blurring the intended sharp distinctions between high achievers and low achievers.

A second complication in the achievement grouping of the subjects was the comparatively high basal level of the Primary II Battery of the Metropolitan Achievement Test. While the XGP of the subjects ranged from 2.1 to 4.9 the results of the Metropolitan Achievement Test had been regulated to yield scores not lower than 1.0, regardless of greatly lacking performance of a child. Consequently children with low XGP could not be highly discrepant, i.e. for a child with XGP of 2.1 the maximal discrepancy score could be only 2.1 - 1.0 = 1.1. Thus it was very likely for this subject to be classified as a high achiever. For children with high XGP, on the other hand, the potential discrepancy was so much greater and therefore they were more likely to be classified as low achievers.

An additional problem of achievement grouping of the subjects was the lack on control of possible attrition of subjects from the designated research groups. The study had been designed in such a way that the investigators had no knowledge of the achievement level of the children whose families were to be visited. This measure had been taken to prevent bias of the investigators in their interrogations of the parents. But, at the same time, the measure complicated proper control of the selection procedure. While a special coding system had been devised to attain equal numbers of high and low achievers within the two different socioeconomic populations the subjects had not been matched according to their characteristics of IQ, MA, or XGP. Thus the effect of attrition of one subject could not be counterbalanced through elimination of other comparable subjects. Due to this lack of rigorous control of the selection procedure the parents' willingness to participate in the study then became a decisive factor in the constellation of the achievement groups.

The extent of disproportionate representation of IQ, MA, and XGP among the achievement groups is represented in Table 19.

Table 19

Correlations between the Characteristics of IQ, MA, and XGP and the Achievement Classification and Achievement Scores of the Subjects.

Sample Characteristic	Achievement Classification	Achievement Score
Intelligence Quotient	-.31	-.34*
Mental Age	-.42*	-.65***
Expected Grade Placement	-.37*	-.59***

* = Correlations significant at $p < .05$
*** = Correlations significant at $p < .001$

The designated correlation coefficients were found significant especially when the subjects within the different achievement groups were considered with regard to their achievement score. It was concluded that the indicated great imbalance of the characteristics of IQ, MA and XGP were due to the combined effects of the initial Horn formula, the high basal level of the Metropolitan Achievement Test, and lack of rigorous control of attrition of subjects from the research groups.

Relevance of the Parent Interview

The Parent Interview had been designed as an exploratory layout of parental descriptions of their interaction with the EMR child. The available information from the parents had been assessed through content analysis according to five different perspectives: (1) persons (2) dealings (3) activity areas (4) frequency-regularity, and (5) comparisons with a non-retarded sibling.

The various subsections of the categories which had been established for the content analysis allowed for a total of 35 different distinctions which were applied to the responses of the mothers as well as to the responses of the fathers.

Large sections of the Parent Interview had been devoted to questioning the parents about their reading and arithmetic activities with the child, since the investigator anticipated to find specified relationships with achievement particularly in these areas. The special reason given for this expectation was that the achievement score of the subjects was to a large extent based on performance in reading and arithmetic on the Metropolitan School Achievement Test. The investigator's speculation then had been that frequent parental comments on their reading and arithmetic activities with the child might be an indicator of intense parental effort to help the child improve his skills in reading and in arithmetic which, in turn, would enhance the child's achievement in school.

Yet the obtained information on parental teaching of reading and arithmetic yielded no significant correlation with achievement, in fact, the lack of indicated relationships was striking. For the mothers the correlation between teaching of reading and achievement of the child was $\underline{r} = .07$ and for the fathers $\underline{r} = -.06$. For both parents the correlation between teaching of arithmetic and achievement of the child was $\underline{r}$ = .00.

Moreover, no relationship with achievement was indicated for any of the Parent Interview items on "persons mentioned," "activity areas," "frequency-regularity," or "comparisons with the non-retarded sibling". Only one item on "dealings," namely, "social emotional dealings," revealed a significant relationship with achievement, and then only the information from the fathers was relevantly related with achievement, but not the information from the mothers.

We may ask in which way social emotional dealings could be so importantly related to the achievement of the child. Paternal acts of greeting the child, loving him, sitting close to him, talking, or merely listening to him would seem to convey little information which would help the child to answer the specific questions on a school achievement test.

But social emotional dealings with the child seem to imply more than a mere dispensation of information to the child; they may, rather, be considered as an intensely personalized form of interaction. The results of the investigation point out that high frequency of such interaction between father and child are most likely also connected with comparatively high achievement of the child in school.

The obtained correlations, however, do not specify whether social emotional dealings on the part of the father accounted for the child's achievement, or whether the relative achievement level of the child made the father inclined or disinclined to deal with the child in social emotional ways.

We may perhaps assume here a cyclical process with a close interrelationship of the factors of social emotional dealings and the factors of school achievement of the EMR child. Thus a father's frequent social emotional dealings might motivate the child to achieve better in school; the subsequently improved performance of the child may predispose the father to more frequent dealings with the child. An opposite trend could by hypothesized for the low achievers. The father's infrequent social emotional dealings might provide little incentive for the child to achieve in school. A continuing lack of achievement on the part of the child might further discourage the father from interacting with the child in forms such as loving him, sitting close to him, talking or listening to him.

The actual significance of the item "social emotional dealings" might still be questioned on basis of the fact that it represented only one out of 35 interview distinctions for the fathers, or one out of 70 interview distinctions for both parents. But it should be emphasized here that "social emotional dealings" was not only significantly correlated with the achievement score of the child ($p < .05$), but also with the achievement classification of the subjects ($p \quad .01$). No other item from the Parent Interview showed any significant relationship with achievement score or with achievement classification.

The obtained statistical results point to parental remarks on "social emotional dealings" as a sole avenue of relevant relationship with achievement of the child. The other items of interview responses from fathers and mothers failed to indicate any relevant relationship to the achievement of the child. But we have to consider the possibility that the lack of relevance was perhaps due to the inadequacies of the interview schedule and of the content analysis of the Parent Interview. The fact that several parents had to ask for further clarification of the interview questions, and the fact that many parents responded to the questions in vague terms, suggest weaknesses in the interview procedure. The parents were perhaps given too much leeway to express themselves freely, and not enough guidance to formulate their thoughts in words which could be pointedly related to the purpose of the investigation. Moreover, the intercoder agreement for the universe of information which had been obtained from the parents was comparatively low (Median of 73%). This fact suggests further that the concepts which have been applied in this research may not be defined in sharply concise terms.

Father-Mother Differences in Correlations Obtained from the Parent Interview

A special attempt was made to detect characteristic patterns of maternal versus paternal tendencies in the obtained information about the EMR child.

Special differences between the parents had been revealed for the item social emotional dealings with the child. Fathers, regardless of their socioeconomic level, had commented on social emotional dealings in proportion to the school achievement of the child. For the mothers only a nonsignificant negative correlation between social emotional dealings and achievement was found ($\underline{r} = -.23$, $p > .10$) but a highly significant positive correlation with the socioeconomic level of the family was shown ($\underline{r} = .47$, $p < .01$). While the fathers' social emotional dealings seemed to be conducively related to the achievement characteristics of the child, the mothers' expressions on social emotional dealings with the EMR child seemed to serve more the function of articulating values commensurate to the family's social position within the community.

For the other Parent Interview responses the differences between mothers and fathers were less obvious. Table 20 presents the results of selected interview responses for which significant correlations with socioeconomic level and sex of the child had been obtained.

More socioeconomic differences were noted for the mothers as compared to the fathers. Some special tendencies may perhaps be ascribed to the frequent comments on part of higher socioeconomic status fathers in describing their *teaching of reading* to the child while higher socioeconomic status mothers typically made more neutral comments that the *child was reading*. Also higher class fathers were more likely to make frequent favorable comments on their EMR child. They stressed more often differences between their EMR child and the non retarded sibling, while higher status mothers made more frequent comments on the similarities between the two children.

With regard to intra-parental differences, as to sex of the EMR child, a generalized similarity and balance of responses was noted except for two specified contrasts. For the item mother-child interaction more responses were obtained from fathers of EMR boys. While this result was not statistically significant (r = .27, $p <$ .10) it was nevertheless very unusual in that in contradicted the trend of more frequent interview responses from parents of girls. The counter-related item "father-child interaction" showed greater frequencies for the mothers of girls (r = . -26, $p <$ .10) though not statistically significant either. The results may be interpreted as a possible parental tendency to make more comments on interaction with child when the child's sex is opposite to the sex of the parent. Another difference between paternal and maternal interview responses was indicated for the item "high regularity-frequency". This item proved very relevant for fathers of EMR girls while for the mothers the frequency of interaction was not related with sex of the child.

Table 20

Mother-Father Differences in Significant Correlations Between Parent Interview Items, Socioeconomic Level, Sex of Child, and Parental Intercorrelations of Items

INTERVIEW CATEGORY	Socioeconomic Level		Sex of Child		Intercorrelation of item per M/F
Interview Item	Fath.	Moth.	Fath.	Moth.	
PERSONS MENTIONED					
Child with mother			.27a	-.35*	-.12
Child with father			-.19b	-.26	.18
Child with sibling	-.15	.39*			
Child with family			-.40	-.16	.00
Child with relatives			-.24	-.45**	.43**
DEALINGS WITH THE CHILD					
Social emotional	-.14	.47**			-.06
working with child			-.39	-.14	.18
teaching reading	.36*	.26			.37*
CHILD ACTIVITY AREAS					
social emotional			-.36*	-.39*	.19
general learning			-.40*	-.40*	.66*
reading activities	.18	.35*	-.13	-.37*	.25
indicated limitations	.19	.37*	-.43**	-.30	.17
FREQUENCY-REGULARITY					
hypothetical situations			-.24	-.33*	.23
high frequency-regularity			-.45**	-.09	.15
COMPARISONS					
favorable to EMR	.44**	.00			.00
both on equal terms	.23	.41*			.25
stressing differences	.36*	.23	-.34*	-.10	.13

a) positive correlations with sex are representative of more frequent responses from parents of boys

b) negative correlations indicate greater frequencies for parents of girls

Consistently High Frequency of Teaching Approaches on Part of Mothers of Low Achievers

A special finding of the Parent Test was the consistency of negative correlations between maternal teaching approaches and the school achievement of the children. The mothers of low achievers consistently put forth more noticeable effort in the experimental teaching situation than did the mothers of high achievers. This finding raises a number of questions such as (a) possible test contingency of maternal involvement (b) maternal control over the child (c) representativeness of the experimental teaching situation (d) relevance of the selected categories of content analysis of the Parent Test.

Possible Test Contingency of Maternal Involvement: A special attempt had been made to select teaching tasks above the expected achievement level of the child. The special problem in task selection was to find test items which would be of comparable difficulty for both the low achievers and the high achievers. The results of the test suggest that this problem was not satisfactorialy mastered. The low achievers, i. e. the subjects who had tested on the Metropolitan Test far below their expected achievement level, also seemed to have considerably more diffuculty with the tasks of the Parent Test. Thus we could interpret the greater effort on part of the mothers of low achievers as function of low performance ability of the child which necessitated more help from the mother.

Maternal Control: The reader may want to ask: Had any exacting criteria been demanded from the mothers to force them into action? No, the mothers had simply been instructed to use whichever approach they thought would be best to help the child learn the task. Also, no hint had been given to the mothers that the Parent Test would involve comparisons between children of different achievement levels. Yet the mothers of low achievers nevertheless put forth very frequent efforts with the child, while the mothers of high achievers were more moderate in their approaches.

We could perhaps interpret the significant differences in frequency of maternal teaching approaches in terms of contrasting control of the EMR child. Mothers of low achieving children who put forth noticeable efforts in teaching the child seem to resemble a type of overprotective dominating parent described by Levy (1943, p. 107) who "attempts with concentrated effort to mold the child". Mothers of high achieving children, on the other hand, seem to personify a maternal approach described by Winterbottom (1953) and by Rosen (1956), through which the mother allows autonomy to the child and is willing to reduce her parental efforts when the child is able to do the tasks on his own.

Representativeness of the Experimental Teaching Situation: A special factor of the experimental teaching situation was the presence of the investigator. The high frequency of expressions of parental concerns about their performance on the test indicated that the mothers were not merely interacting with the child; but, rather, that they were reacting to potential standards of teaching behavior the investigator might expect of them. The significantly greater frequency of expressed parental concerns on part of the mothers of low achievers suggests a certain anxiety on part of these mothers. We may perhaps suppose that these mothers were less sure of their skills of interaction with the child, and the very presence of the investigator put them into a position of defensive teaching behavior, entailing great verbosity. Mothers of high achievers, in contrast, were perhaps more sure of their interaction skills with the child and therefore felt perhaps less threatened by the presence of the investigator, and consequently acted in a more relaxed manner. They generally spoke at a slower rate ($p < .10$) and finished earlier with their teaching ($p < .10$).

Relevance of the Selected Categories of Content Analysis of the Parent Test: The consistency of negative correlations with achievement shows the teaching approaches in opposition to achievement but it does not provide information on teaching actions which would be positively related with the child's achievement in school.

In a special effort to bring out detailed differences in parental teaching the investigator had coded all the expressions of the parents in a word-by-word content analysis. The obtained highly significant intercorrelations between the nineteen specified teaching approaches (intercorrelations mostly at $p < .001$) suggest that the content analysis of the Parent Test had been executed too atomistically instead of contemplation of more comprehensive units of meaning. A more effective approach for content analysis of parental responses is currently demonstrated in the studies on pre-school children by Hess et al (1966) using linguistic criteria of content analysis, such as relative restrictiveness or elaborateness of maternal expressions about the child.

Preponderance of Responses from Parents of EMR Girls

The great majority of all the responses obtained from the Parent Interview and Parent Test were given by parents of EMR girls. This result was so much more surprising since there were only 12 girls represented in the total group of 36 research subjects. Except for the Parent Interview items "child interacting with mother," "child actions indicative of mental limitations," and "high frequency-regularity," there appeared no distinct intraparental differences with regard to sex of child; both, the mothers and the fathers of EMR girls were more expressive during the research session than were the mothers and fathers of boys. For the test on maternal teaching techniques the comparatively higher frequency of remarks by mothers of girls was especially striking: sixteen out of nineteen teaching variables yielded significant correlations (mostly at $p < .01$). This preponderance of responses from parents of EMR girls might perhaps be explained in terms of interaction of the following factors (a) socioeconomic standing of the families of EMR girls (b) disproportionate task expectancies for the group of EMR girls (c) child sex contingency of parental involvement with the EMR child.

Socioeconomic standing of the families with EMR girls: Throughout the Parent Interview and the Parent Test predominantly more frequent remarks had been obtained from parents of the higher socioeconomic group. Table 21 shows that among the twelve families with EMR girls the mean socioeconomic rating was considerably higher than for the 24 families with EMR boys or for the total group of subjects. Consequently we could also expect that the expressiveness of the parents with girls was commensurate to their socioeconomic standing and accordingly yielding a greater frequency of remarks.

Table 21

Numbers of Subjects, Mean Socioeconomic Rating, and Range of Socioeconomic Rating of Girls, Boys and the Total Research Group

Subject Groups	N	$\overline{X}$ Socio-economic Rating	Range of Rating
girls	12	48	19 - 79
boys	24	24	7 - 85
Total Group	36	30	7 - 85

Disproportionate Task Expectancies for the Group of EMR Girls:
Due to preliminary decision the investigator had assigned a few more difficult teaching tasks to mothers of children with expected grade placement of 4.0 and above (see page 53, Figure 2, and Table 8). It was found that five of the twelve girls fell into this higher task expectancy class as compared to one out of 24 boys. Careful inspection of the individual records of the subjects in the higher task expectancy group shows that all the mothers of these subjects used teaching approaches in pronounced high frequencies. Since such a large proportion of girls was subdued to the more difficult tasks we would also have reason to consider the differences in task expectancies themselves as an important contributor to the frequent expressions on part of mothers of girls.

Child-Sex Contingency of Parental Involvement with the EMR Child:
The small number of girls in the research sample, the disproportionate distribution of girls in the socioeconomic groups and in the task expectancy groups make it impossible to draw straight-forward conclusions

about parental relations to boys versus to girls. The more sparing expressions on part of parents of EMR boys might be indicative of greater parental distance from the child, while the greater verbosity on part of parents of EMR girls might suggest greater parental involvement with the child.

Concluding Comments on the Discussion of Results

The study represented a special example of the many difficulties which may be encountered in a multivariable research project which is aimed at exploring a wide array of assumptions.

It was found unexpectedly difficult to select contrasting achievement groups which would be properly balanced with regard to the characteristics of IQ, MA, XGP, sex of child, and socioeconomic standing of the family.

A special challenge was the experimentation with the newly developed instruments of interrogating both parents, and of leading the mother into a situation of teaching her EMR child. As the Parent Interview yielded only few significant results, and as the findings of the Parent Test were obscured through the dense overlay of its many variables, we may have to judge the study as only a surface attempt at investigating the processes of parental teaching of the EMR Child.

CHAPTER VIII

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The Problem and the Objectives

Academic achievement of EMR children has usually been considered as an issue within the domain of the school. Investigations on the subject have generally been directed at showing what the school or teachers can do, or are failing to do, in fostering academic achievement of EMR children.

The approach taken in this study was different in that it probed into the home learning situation of EMR children. It was assumed that parents react to a child's slowness in academic learning with particular behavior patterns which additionally influence the child's progress in school. The specific objective of the study was to identify forms of parental interaction with the EMR child which would be relevantly related to the child's achievement in school.

The Subjects

The subjects for the study were the fathers and mothers of 36 EMR children. The children were selected from a large suburban special education system according to the following criteria: CA 9-0 to 12-11; IQ 55 to 75; special care was taken not to include subjects with observed or diagnosed organic involvement; the children selected had been attending special education classes for at least two years, and all of them were Caucasian. The sex of the children was not specified for selection purposes. The children were selected on the basis of especially high or especially low achievement. Achievement was defined in terms of relative discrepancy between expected school achievement on basis of the Horn formula (1941) and the obtained score on the Metropolitan School Achievement Test. The two achievement groups were further subdivided into "higher" and "lower" socioeconomic groups as determined by the Reiss - Duncan Index (1961).

Research Procedures

Two instruments were developed in this research for the purpose of identifying forms of parental behavior which might be related to the school achievement of the EMR child:

a) The Parent Interview was designed to elicit from the parents detailed descriptions of their activities with the EMR child. The parents were interviewed separately in their home. The responses to this open-ended interview were later analyzed by means of a content analysis using the theme-categories: Persons, Dealings, Subject Matters, Frequency-Regularity, and Comparisons with a Non-Retarded Sibling. The agreement between the coders on identification of the theme categories ranged from 56% to 90% with a median agreement of 75%. The intercoder agreement on subdistinctions within the selected theme categories ranged from 75% to 100% with a median agreement at 90%.

b) The Parent Test made use of direct observation of parental attempts to teach specified Block Designs and tasks of General Information from the WISC. The children were taught by their mothers in their home. The tape-recordings from these teaching situations were then scrutinized word by word and sorted according to nineteen different teaching techniques. The intercoder agreement on specifying the particular teaching techniques the mothers were using ranged from 65% to 100% with a median agreement at 93%.

Results

Summary of Results on Investigations on Sample Characteristics:

The special finding on investigations on sample characteristics were the indicated signs of imbalance among the subgroups of the sample:

a) Significantly less achievement discrepancy was observed among the high achievers of the lower socioeconomic group as compared to the high achievers of the higher socioeconomic group ($t = 2.86$, $p < .05$) but the achievement discrepancy scores of the low achievers in both socioeconomic groups were found equivalent.

b) The high achievers in both socioeconomic groups differed from the low achievers in that they generally had a lower IQ, MA, and expected grade placement (F values of 4.69, 6.28, and 4.31 at 1/35 d.f., $p < .05$). The analyses of variance for socioeconomic grouping yielded insignificant results. For the interaction effects of achievement grouping and socioeconomic differentiation only the characteristic of IQ showed a significant F value ($F = 4.69$, 1/35 d.f., $p < .05$) indicating generally lower IQ for the high achievers of both socioeconomic groups.

c) Significant differences in the distribution of girls among the four research groups were shown according to Fisher's Exact Probability Test with results at the .01 level of significance indicating a dispoportionately high representation of girls in the higher socioeconomic group.

Summary of Results from the Parent Interview

This section will describe the results from the Parent Interview. Its special aspects are: Persons Mentioned, Dealings with the Child, Subject Matter of Parent Child Related Activities, Frequency-Regularity, and Comparisons.

Persons Mentioned: Higher socioeconomic status mothers remarked more frequently on interaction between the EMR child and siblings than did lower socioeconomic status mothers ($p < .05$). The observed parental distinctions with regard to sex of child were all in favor of EMR girls, with fathers referring more frequently to the girl's interaction with family members as such ($p < .05$) and the mothers commenting more frequently on the girl's interaction with her mother ($p < .05$) and with relatives, ($p < .01$).

Dealings with the Child: Prominent correlations were revealed for the item "social emotional dealings with the child". Frequent paternal remarks on this aspect were observed for children who had been classified as high achievers ($p < .01$), while frequent descriptions of the mothers on their social emotional dealings with the EMR child were more representative of high socioeconomic level of the family ($p < .01$).

Additional results on "Dealings with the Child" were: (1) the fathers of the higher socioeconomic group commented more frequently on their techniques of teaching reading to their retarded child ($p < .05$) than did lower socioeconomic status fathers, and (2) fathers of EMR girls specified more often their ways of working with the child than did fathers of EMR boys. ($p < .01$).

Subject Matter: Mothers of the higher socioeconomic group remarked more frequently on the "child's reading activities" and on "indicated limitations of the child" (both items were significant at $p < .05$) as compared to mothers from the lower socioeconomic group. However, this difference did not appear when sex of child was held constant.

Parents of EMR girls, as compared to parents of EMR boys, consistently had more entries in the categories (1) " the father comments on social emotional expressions of the child" ($p < .05$), (2) "both parents mention learning activities of the child ($p < .05$), and (3) "the father described indicated limitations of the child" ($p < .01$).

Frequency-Regularity: Fathers of EMR girls referred more often to activities which they carried out with their child at least three times a week than did fathers of EMR boys ($p < .01$). Mothers of EMR girls, as compared to mothers of EMR boys, described more often teaching techniques they would use in a hypothetical learning situation with the child ($p < .05$), but partial correlations indicated that these descriptions were more characteristic of mothers of higher socioeconomic status girls. No differences were found for the parents of EMR boys.

Comparisons: Mothers of the higher socioeconomic group made more frequent references to similarities between the EMR child and the selected non-retarded sibling, as compared to lower socioeconomic status mothers ($p < .05$). Higher socioeconomic group fathers, on the other hand, commented more on the differences between the children ($p < .05$). This tendency was especially pronounced among higher socioeconomic group fathers.

It was also observed, that the higher the socioeconomic rating of the family, the more was the father inclined to make favorable remarks about his EMR child ($p < .01$).

Summary of Results from the Parent Test

The results from the Parent Test were marked by unexpected findings on the relationship between achievement score and frequency of observed maternal teaching efforts. During the pilot study for this project mothers of high achieving EMR children were observed to show greater efforts in teaching their child than the mothers of low achieving EMR children. In contrast to the findings of the pilot study the mothers in this investigation applied their teaching efforts in inverse proportion to the achievement score of their child.

Especially great frequencies of teaching acts were observed for mothers of children with very low achievement scores. Significant correlations ($r = -.43$, $p < .01$) were revealed for the teaching variables "personalizing" and "praising", and correlations ranging from $r = -.34$ to $-.40$ (all at $p < .05$) for the variables "focusing," "verbal conceptual helps," "visualizing," "questioning", "repeated presentations," "expressed praental concern about the test," and "irrelevant words."

Higher socioeconomic status mothers differed from lower status mothers only by their more frequent application of "repeated presentations" ($p < .05$), which was generally true of mothers of high achieving children. But no significant socioeconomic difference was shown when the achievement of the children was held constant.

In order to investigate possible interdependence of the teaching variables with the characteristics of sex, MA, and achievement score of the child, partial correlations of first and second order were applied. Most of the correlations between teaching techniques and achievement socre of the child were still significant when sex and MA were partialed out simultaneously. Correlations of achievement score with "visualizing" and with "parental concerns about the test," however, were not statistically significant when the combined effects of sex of child and MA were partialed out.

When the nineteen designated teaching variables were tested for their intercorrelations a great number of significant positive correlation coefficients were obtained, ranging from r = .33 to r = .96 with the majority of intercorrelations found at the .001 level of significance. This result suggested a great interdependence of the teaching variables, especially among the techniques with a high word frequency.

General Summary of Results

In spite of the obvious shortcomings of the study, its results nevertheless suggest new lines of thinking about parents and their EMR child. Of special value for educators appear to be the findings of "social emotional dealings" and "parental teaching techniques" as restated below:

a) The fathers of the high achieving EMR subjects distinguished themselves during the Parent Interview by mentioning very frequently such personalized routines of interaction with the child as, greeting, loving, sitting close to him, talking informally, or merely listening to him. During the Parent Test the mothers of these children exercised comparatively little verbal control over the child.

b) By contrast, the fathers of the low achieving EMR children remarked only infrequently to the interviewer about their social emotional dealings with the child. But in the Parent Test the mothers imposed on the child numerous explanations, questions, repeated terms, irrelevant words, and they had also very often appealed to the child through personalized pronouns and names, and through words of praise.

IMPLICATIONS

The purpose of the present section is to show what implications the specified findings on "social emotional dealings" and on "parental teaching tactics" might have for parent counseling, teacher training and for educational research.

Implications for Parent Counseling

Social emotional dealings may be considered as patterns of informal interaction with the child, while actual attempts of teaching a child a particular task would seem to represent a formal approach of interaction with the child. The investigation showed that the fathers of low achieving EMR children were comparatively lax in their informal attempts to interact with the child, but the mothers were very insistent in their formal approaches. Their extensive use of verbalizations to teach the child seemed to indicate a verbal overprotection of the child.

We may suppose that mothers of EMR children would be easily inclined to verbally dominate and overprotect their child. Many parents might consider the child's difficulty with his schoolwork at the most critical deficit, and therefore make great efforts of verbal persuasion to help the child conform to the requirements of the school. Since EMR children themselves typically lack facility of verbal expression, the mother may want to compensate for her child's inadequacy through more extensive verbalization on her part. The mother may even take on the role of a continual interpreter for the child, to specify for him in detail, what he supposedly doesnot know on his own. But the mother's didactic ambitions may be so great that the father has little chance to find time to informally love, talk to, or merely listen to the child. Such an overdose of verbal domination on part of the mother would then also leave little room for the child to achieve on his own.

The preponderance of responses from parents of EMR girls did not bear any significant relationship to the achievement of the child. However, the results of the study suggest that mothers of EMR boys may not so actively involve themselves with the child as mothers of EMR girls do and that the boys may be less subject to verbal domineering and overprotection on part of their mother than the girls.

Implications for Teacher Training

Teachers of EMR children may find it very difficult to recognize the particular style of parental teaching in the home. As some children in special education classrooms fail continuously to come up to expected achievement levels the teacher may to some extent blame this on the efforts lacking on part of the parents. But the parents, actually, may have been working very hard with the child, even to such an extent that little time remains for informal interaction. The tendency of teachers to give extra home assignment to the child who makes little progress in school, may then cause additional strain on the relationship between mother and EMR child in that it may incite the mother to greater verbal domination over the child, at the expense of informal family interaction and the autonomy of the child.

Dominating verbal overprotection in the home may, on the other hand, increase the learning difficulties the child experiences in school. The continued verbal pressure to which an EMR child may be subjected in the home may arouse hostilities in the child which are projected against the parent surrogate, i. e. the teacher. In order to sustain the mental health of the EMR child, the special class teacher may then find it necessary to replace her formal teaching with informal home like interaction, such as showing of affection, casual conversations, merely listening to the child to give him a chance to express himself on his own.

Due to an overconcern for the EMR child's progress in school, the parents may be overly critical of the teaching procedures used in the special education classroom. They may be inclined to continually belittle or exaggerate the statements of the special education teacher. Much extra counseling time may be needed to especially help the mother to relax her anxious teaching efforts for the child. The parents may perhaps be best convinced of forthcoming progress of the child if the teacher specially emphasizes instilling independent skills.

Implications for Educational Research

In the course of this study two instruments were developed which may prove useful for further research on parental teaching. Much has been writte about the relationship between socialization in the home and educational practices in the school. However, research techniques for investigating the relationship between family interaction and academic achievement are as yet very primitive. Especially in the area of investigation of the intricacies of family influences on the academic progress of EMR children, the approaches so far have lacked instruments for systematic experimentation. The Parent Interview and the Parent Test, as elaborated in this study, represent an attempt to fill this need.

Recommendations for Follow-Up Research

The execution of the present experimental design was hampered by small sample size, wide ranges and unequal distribution of main characteristics within the subject groups, and by unexpected limitations of the measurements which were used. Due to these shortcomings the results of the present study can be considered only tentative and will need further testing by means of a more comprehensive execution of the same basic design.

The following improvements in the present study are suggested:

1. Use of a larger EMR population than is represented in St. Louis County. We could envision a project including the entire Metropolis of Saint Louis, or several cities.

2. Confinement of the basic characteristics to -

   CA 10 to 10:11, IQ 65 to 75, XGP 3 to 3:9

3. Definition of XGP (expected grade placement) on the basis of MA only, without use of Horn formula.

4. Matching of low and high achievers on the variables of IQ, XGP, socioeconomic rating, and sex of child.

5. Deletion from the interview schedule of any questions which might only elicit opinionated statements; e.g., the question: Which activities do you enjoy most with your child?

6. More careful insistence on parental responses to the interview questions.

7. The content analysis of the present Parent Interview study should be repeated for testing of current results, the singular items of "social emotional dealings," such as "greeting," "loving," "sitting close to the child," should later be specified in order to determine their relative importance.

8. More careful preparation of the mothers for the Parent Test is required. Since several of the mothers indicated that the father was of more help with the child at home, inclusion of fathers in the Parent Test should be considered. In order to prevent the distraction of the parent by the presence of the investigators, the Parent Test might be better carried out in a room with standard equipment and with one-way mirrors.

9. The content analysis of the Parent Test should be repeated for testing of current results. An additional possibility would be to execute the content analysis according to the linguistic analyses of Hess *et al.* (1966, p. 24)

   a) *Orienting.* Orienting statements were used by the mother to develop a set in the child's mind for task activity to follow "I'm going to show you how to put these blocks in the right place," "Let's try it once more.")

b) Seeking Physical Feedback. The mother was seeking physical feedback whenever she asked the child to sort of group the blocks (taskmaterial) . . ("Where does this block go? "; "Put this with the other blocks that are tall and have 'x' on them. ")

c) Seeking Verbal Feedback. The mother was seeking verbal feedback whenever she asked the child to identify attributes of the blocks (testmaterials) or to explain the sorting principle (design principle) . . ("Is this tall or short? "; "Why did you put that block there? ")

d) Positive Reinforcement. Messages coded as positive reinforcements were verbal confirming statements which immediately followed correct responses by the child ("That's right"; "Yes, that's an 'X'. "). . (Included with positive reinforcements may be words of praise such as "very well, " "you are doing fine. ")

e) Negative Reinforcements. Messages coded as negative reinforcements were verbal negations which immediately followed incorrect responses ("That's not right, " "No, this is a tall block. ") . . (Included with negative reinforcement may be words of reprimanding the child "Don't you know that, " "stop acting silly. ")

f) Use of SpecificLanguage. The informing messages and feedback requests were additionally coded for specifity of language in which they were phrased requiring cognitive discrimination on part of the child ("Find a tall block with an "X' on it. ")

g) Use of Global Language. The informing messages and feedback requests were additionally coded for lack of specificity in requiring discriminations of the child ("Find the block that goes here. ")

According to Hess et al (1966) every message that required discrimination by the child was coded as either global or specific.

10. Use of Pearsons Product correlation procedures for statistical tests of the current results and for comparison of the relevance of current procedures to the new procedures newly suggested by Hess et al.

It would appear that only a thoroughly controlled follow-up study of the present investigations will clearly reveal the aspects to be considered in future research endeavors directed toward the discovery of the relevant relationships between parental teaching and the school achievement of the EMR child.

BIBLIOGRAPHY

Atkinson, J. W. (Ed.) Motives in fantasy, action, and society. New York: Van Nostrand, 1958.

Bear, Roberta M., Hess R. D., and Shipman, Virginia C. Social class differences in maternal attitudes toward school and the consequences for cognitive development in the young child. Paper presented at the American Educational Research Association, Chicago, Illinois, February 1966.

Bell, R. Q. Structuring parent child interaction situations for direct observation. Child Developm., 1964, 35, 1009 - 1020.

Berelson, B. Content analysis in Communication research. Glencoe, Illinois: Free Press, 1952.

Bishop, Barbara. Mother-child interaction and the social behavior of children. Psycholog. Monograph 1951, 65, 1-34.

Bossard, J. H. S. The sociology of child development. New York: Harper and Brothers, 1960.

Brophy, J., Hess, R. D. and Shipman, Virginia C. Teaching behavior of mothers in structural interaction with their four-year-old children: A study in frustration. Paper presented at the 38th annual meeting of the Mid-Western Psychological Association, Chicago, Illinois, May 1966.

Budd, R. W. and Thorp, R. K. An introduction to content analysis. A publication of the University of Iowa School of Journalism, Iowa, 1963.

Buehler, Charlotte. The child and his family. Translated by Beaumont, H. New York: Harper and Brothers, 1940.

Cain, L. F. and Levine, S. A study of the effects of community and institutional school classes for trainable mentally retarded children. San Francisco State College; U. S. Office of Education Department of Health, Education and Welfare; Contract No. SAE 8257.

Dalton, Juanita and Epstein, Helene. Counseling parents of mildly retarded children. In Casework Services for Parents of Handicapped Children, 1963, 21 - 28.

Dictionary of Education. New York: McGraw-Hill, 1959.

Farber B. and Ryckman, D. B. Effects of severely mentally retarded children on family relationships. Mental Retardation Abstracts, 1965, 2, 1-18.

Finlayson, A. B. Social and economic background of retarded children. J. ed. Sociol, 1941, 15, 38 - 45.

Frank, L. K. Society as the patient. New Brunswick: Rutgers University Press 1948.

Green, A. W. The middle class male child and neurosis. in Bendix R. and Lipset, S. M. (Ed.) Class, Status and Power. Glencoe, Illinois: The Free Press, 1953.

Heber, R. A manual on terminology and classification in mental retardation. Amer. J. ment. Deficiency, Monograph Supplement 1961.

Hess, R. D. Early blocks to children's learning. Children, 1965, 12, 189 - 194.

Hess, R. D. and Shipman, Virginia C. Cognitive elements in maternal behavior. Paper presented at the First Annual Minnesota Symposium on Child Psychology, 1966.

Hess, R. D. and Shipman, Virginia C. Early experience and the socialization of cognitive modes in children. Child Developm., 1965, 36, 869 - 996.

Horn, Alice. Uneven distribution of the effects of specific factors. Educational Monographs, University of Southern California, 12, 1941.

Hyman, H. H. The value system of different classes: A social psychological contribution to the analysis of stratification. In Bendix, R. and Lipset, S.M. Class, Status and Power. Glencoe, Illinois: The Free Press, 1954, 426 - 442.

Jordan, Laura. Reading and the young mentally retarded child. Mental Retardation, 1963, 1, 21 - 27.

Kanner, B. The emotional quandaries of exceptional children. In Proceedings of the Annual Spring Conference on Education and the Exceptional Child: Helping parents understand the exceptional child. The Woods Schools, Langhorne, Pennsylvania, May 1952.

Kirk, S. Educating exceptional children. Boston: Houghton Mifflin, 1962.

Kohn, M. L. Social class and parent - child relationships: An interpretation. Amer. J. Sociol., 1963, 68, 471 - 480.

Levy, D. M. Maternal overprotection. New York: Columbia University.

McClelland, D. C. Personality. New York: Holt, Rinchart and Winston, 1960.

McClelland, D., Atkinson, J. W., Clark, R. A. and Lowell, G. L. The Achievement Motive. New York: Appleton Century-Crofts, 1953.

McClelland, D., Rindlisbacher, A., and de Charms, R. Religious and other sources of parental attitudes toward independence training. In McClelland, D. (Ed.) Readings in motivation. New York: Appleton - Century - Crofts, 1955, 389 - 397.

Mead, Margaret. And keep your powder dry. New York: William Morrow & Co., 1965.

Mercer, Jane R. andDingman, H. F. Social status, ethnic group, and family size as factors in the socialization of the young child. Paper presented at the Society for Research in Child Development Meetings at Minneapolis, March 26, 1965.

Merrill, Barbara. A measurement of mother-child interaction. J. abnorm. soc. Psychol., 1946, 41, 37-49.

Michaels, J. and Schucman, Helen. Observations on the psychodynamics of parents of retarded children. Amer. J. ment. Defic., 1962, 66, 568 - 573.

Parsons, T. and Bales, R. F. Family, socialization and interaction process. Glencoe, Illinois: The Free Press, 1955.

Reiss, A. J. with Duncan, O. D., Hatt, P. K. and North, C. C. Occupations and social status. Glencoe, Illinois: The Free Press, 1962.

Rosen, B. C. The achievement syndrome: A psychocultural dimension of social stratification. Amer. sociol. Rev., 1956, 21, 203 - 211.

Rosen, B. C. and D'Andrade, R. The psychosocial origins of achievement motivation. Sociometry; 1959, 22, 185 - 218.

Ryckman, D. and Henderson, R. The meaning of a retarded child for his parents: A focus for counselors. Mental Retardation, 1965, 3, 4 - 7.

Schalock, H. D. Observation of mother-child interaction in the laboratory and in the home. Dissert. Abstr. 1956, 16, 707.

Scheerenberger, R. C. Mental retardation, definition, classification and prevalence. Mental Retardation Abstracts, 1964, 1, 432 - 441.

Shipman, Virginia C. and Hess, R. D. Early experience in the socialization of cognitive modes in children: a study of urban Negro families. Paper presented at the Fifth Annual Conference on the Family and Society at the Merrill - Palmer Institute, April 1966.

Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw Hill, 1956.

Strodtbeck, F. L. The family in action. Child Study, 1958, 34, 14 - 18.

Stryker, S. Symbolic interaction as an approach to family research. Marriage and family living, 1959, 21, 111 - 119.

Sutherland, E. H. Welfare levels as a factor in crime and delinquency. In Smith, B. O., Stanley, W. O., Benne, K. D. and Anderson, A. W. Readings in the social aspects of education. Danville, Illinois: Interstate and Publishers Inc. 1951, 150 - 155.

Torgerson, T. L. and Adams, Georgia S. Measurement and evaluation for the elementary school teacher. New York: Dryden Press, 1954

Walters J., Connor Ruth and Zunich, M. Interaction of mothers and children from lower class families. Child Developm., 1964, 35, 433 - 440.

Williams, R.M. American society: A sociological interpretation. New York: A. Knopf, 1961.

Winterbottom, Marian R. The relation of need for achievement to learning experiences in independence and mastery. In Atkinson, J. W. (Ed.) Motives in fantasy, action, and society. Princeton, N. J.: Van Nostrand, 1958, 453 - 478.

Zunich, M. Study of relationships between child rearing attitudes and maternal behavior. J. exp. Educ. 1961, 30, 231 - 241.